

**DOE FOR THE 21ST CENTURY: SCIENCE, ENVIRON-
MENT, AND NATIONAL SECURITY MISSIONS**

HEARING
BEFORE THE
SUBCOMMITTEE ON OVERSIGHT AND
INVESTIGATIONS
OF THE
COMMITTEE ON ENERGY AND
COMMERCE
HOUSE OF REPRESENTATIVES
ONE HUNDRED FOURTEENTH CONGRESS
SECOND SESSION

—
FEBRUARY 24, 2016
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Serial No. 114–119



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¹ Mr. Mies and Mr. Augustine submitted a joint response which begins on page 314.

² Mr. Glauthier and Mr. Cohon submitted a joint response which begins on page 325.

DOE FOR THE 21ST CENTURY: SCIENCE, ENVIRONMENT, AND NATIONAL SECURITY MISSIONS

WEDNESDAY, FEBRUARY 24, 2016

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON OVERSIGHT AND INVESTIGATIONS,
COMMITTEE ON ENERGY AND COMMERCE,
Washington, DC.

The subcommittee met, pursuant to call, at 11:30 a.m., in room 2322 Rayburn House Office Building, Hon. Tim Murphy (chairman of the subcommittee) presiding.

Members present: Representatives Murphy, McKinley, Griffith, Flores, Brooks, Mullin, Cramer, DeGette, Schakowsky, Tonko, Kennedy, and Welch.

Staff present: Leighton Brown, Deputy Press Secretary; Charles Ingebretson, Chief Counsel, Oversight and Investigations; A.T. Johnston, Senior Policy Advisor; John Ohly, Professional Staff, Oversight and Investigations; Chris Santini, Policy Coordinator, Oversight and Investigations; Dan Schneider, Press Secretary; Peter Spencer, Professional Staff Member, Oversight; Gregory Watson, Legislative Clerk, Communications and Technology; Andy Zach, Counsel, Environment and the Economy; Ryan Gottschall, Minority GAO Detailee; Rick Kessler, Minority Senior Advisor and Staff Director, Energy and Environment; Chris Knauer, Minority Oversight Staff Director; Una Lee, Minority Chief Oversight Counsel; and Elizabeth Letter, Minority Professional Staff Member.

OPENING STATEMENT OF HON. TIM MURPHY, A REPRESENTATIVE IN CONGRESS FROM THE COMMONWEALTH OF PENNSYLVANIA

Mr. MURPHY. Good morning. Today we will begin to examine how well the Department is prepared to meet its responsibilities for the 21st century in this hearing of the Energy and Commerce Subcommittee on Oversight and Investigations. This includes what is necessary to enhance the performance of the department's national laboratory system, which harbors the technological tools and know-how for advancing our nuclear security as well as the nation's edge in important science, energy, and environmental missions.

Indeed, a strong national laboratory system, well managed and overseen, increases the prospects for a strong DOE mission performance across the board. I know from my own experiences with the National Energy Technology Laboratory, located in my district, which has developed carbon capture storage technology that has al-

lowed the nation to achieve its lowest carbon emission rates in over two decades, the essential role our national laboratories can play to meet the nation's needs.

When it comes to the various missions for DOE, none surpass in importance the Department's critical responsibility for maintaining the nation's nuclear deterrent and technological superiority on all aspects of nuclear security.

This morning we will hear why enhancing and sustaining U.S. nuclear and technological leadership is vital for confronting the complex challenges of the dangerous age we live in—with potential adversaries modernizing their nuclear arsenals; with threats of Iran, other nation-states; with emerging new nuclear technologies and proliferation risks.

Unfortunately, we will also hear that efforts to place DOE's nuclear security operations on a sustainable track have been coming up short for decades. Part of the problem has been the complicated relationships through which DOE pursues its various missions. Most of its work is performed by contractors at the national laboratories and production sites.

The benefit of this contracting approach is that it harnesses the best scientific, engineering, and management expertise of industry and academia; the downside is that it creates difficult oversight and accountability requirements—from DOE headquarters to the site offices to the contractor management to the operators in the field. In our hearing last summer on a radiological incident that began at the Los Alamos National Laboratory, we saw a vivid example of how oversight and contractor accountability breakdowns led to a costly \$500 million incident.

The most dramatic effect to address the management problems in the nuclear weapons complex occurred in late 1999. Congress, in reaction to serious security, project management and safety issues, created the National Nuclear Security Administration, or NNSA, as a semi-autonomous agency within DOE aimed at focusing mission oversight to improve mission performance. Yet the new agency did not improve oversight or accountability. In some respects, the complexity increased, with more offices, more audits, more lines of reporting—increasing costs, obscuring communications, confusing decision-making accountability.

Problems persisted—billion dollar cost overruns, delayed and cancelled projects, deferred maintenance, serious safety and security mishaps, and oversight failures at the Department, site office, and contractor level—all documented in this committee's oversight.

Three years ago, in the wake of across-the-board oversight failures at NNSA's Y-12 site, Congress created the Congressional Advisory Panel on the Governance of Nuclear Security Enterprise. The independent, bipartisan panel examined and made recommendations concerning the management of NNSA's nuclear operations and alternative governance models.

Let me quote the panel's diagnosis, released just over a year ago: "One unmistakable conclusion is that NNSA governance reform, at least as it has been implemented, has failed to provide the effective, mission-focused enterprise that Congress intended. The necessary fixes will not be simple or quick, and they must address sys-

temic problems in both management practices and culture that exist across the nuclear enterprise.”

That panel said the lack of sustained leadership focus on the nuclear security mission contributes to virtually all the observed problems. Other problems contributing to the failures include overlapping DOE and NNSA headquarters staffs and blurred ownership and accountability for the nuclear enterprise missions, and dysfunctional relationships between mission-support staffs and between the government and its contractors operating the sites—all issues very familiar to this committee.

Today’s hearing will focus on the path to position DOE to take on its critical nuclear security responsibilities. A key element is to examine how to strengthen and sustain cabinet secretary’s ownership of the nuclear security mission and reduce bureaucratic overlap.

We have four distinguished witnesses who can outline the roadmap for reform: the co-chairmen of the Congressional Advisory Panel who can explain what is necessary to cut a path forward to clarify roles, responsibilities and accountability, reduce duplicative offices, and improve the nuclear security mission.

We will also hear from the co-chairmen of the congressionally chartered Commission to Review the Effectiveness of the National Energy Laboratories. This Commission, which released its comprehensive report this past October, identified challenges across DOE laboratory system that relate to oversight, micro-management, and related problems we see most visibly in the nuclear weapons programs.

In many respects, the thoughtful recommendations from these panels complement each other and can serve this committee as a guide for identifying what is necessary to address DOE governance and management shortcomings going forward.

[The prepared statement of Mr. Murphy follows:]

PREPARED STATEMENT OF HON. TIM MURPHY

Today, we will begin to examine how well the Department is prepared to meet its responsibilities for the 21st Century. This includes what is necessary to enhance the performance of the department’s national laboratory system—which harbors the technological tools and know-how for advancing our nuclear security as well as the nation’s edge in important science, energy, and environmental missions.

Indeed, a strong national laboratory system, well managed and overseen, increases the prospects for strong DOE mission performance across the board. I know from my own experience with the National Energy Technology Laboratory, located in my district, which has developed carbon capture storage technology that has allowed the nation to achieve its lowest carbon emissions rates in over two decades, the essential role our national laboratories can play to meet the nation’s needs.

When it comes to the various missions for DOE none surpass in importance the department’s critical responsibility for maintaining the nation’s nuclear deterrent and technological superiority on all aspects of nuclear security.

This morning, we will hear why enhancing and sustaining U.S. nuclear and technological leadership is vital for confronting the complex challenges of the dangerous age we live in— with potential adversaries modernizing their nuclear arsenals; with threats of Iran, other nation-states; with emerging new nuclear technologies and proliferation risks.

Unfortunately, we will also hear that efforts to place DOE’s nuclear security operations on a sustainable track have been coming up short for decades. Part of the problem has been the complicated relationships through which DOE pursues its various missions: most of its work is performed by contractors at the national laboratories and production sites.

The benefit of this contracting approach is that it harnesses the best scientific, engineering, and management expertise of industry and academia; the downside is that it creates difficult oversight and accountability requirements—from DOE headquarters to the site offices, to the contractor management, to the operators in the field. In our hearing last summer on a radiological incident that began at the Los Alamos National Laboratory, we saw a vivid example of how oversight and contractor accountability breakdowns lead to a costly, 500 million dollar incident.

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Let me quote the panel's diagnosis, released just over a year ago:

"One unmistakable conclusion is that NNSA governance reform, at least as it has been implemented, has failed to provide the effective, mission-focused enterprise that Congress intended. The necessary fixes will not be simple or quick, and they must address systemic problems in both management practices and culture that exist across the nuclear enterprise."

That panel said the lack of sustained leadership focus on the nuclear security mission contributes to virtually all the observed problems. Other problems contributing to the failures included: Overlapping DOE and NNSA headquarters staffs and blurred ownership and accountability for the nuclear enterprise missions; and dysfunctional relationships between line managers and mission-support staffs and between the government and its contractors, operating the sites—all issues familiar to this committee.

Today's hearing will focus on the path to position DOE to take on its critical nuclear security responsibilities. A key element is to examine how to strengthen—and sustain—Cabinet secretary's ownership of the nuclear security mission and reduce bureaucratic overlap.

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In many respects, the thoughtful recommendations from these panels complement each other, and can serve this committee as a guide for identifying what is necessary to address DOE governance and management shortcomings going forward.

Mr. MURPHY. So I thank all the witnesses for attending, and I now recognize the ranking member from Colorado, Ms. DeGette, for 5 minutes.

Ms. DEGETTE. Thank you, Mr. Chairman. As you have heard me say before, I have been on this subcommittee now for, I am in my 20th year on this subcommittee, and unfortunately, the long view doesn't improve the situation regarding the NNSA. This agency was created more than a decade ago as a semi-autonomous agency within the Department of Energy because of the systemic and complex problems that were facing the labs and a belief that by somehow creating this agency it would solve the problems.

At the time, my mentor and the former chairman, John Dingell, and others, cautioned that this move would not solve the complex management and structural issues that faced the nuclear weapons complex and national labs, and would likely lead to greater problems, and lo, their prediction proved true.

Over the course of the next decade, this very subcommittee investigated and held hearings about the weapons labs, examining accidents, missing or mishandled classified materials, management and staff clashes, and mismanaged projects that would ultimately cost taxpayers hundreds of millions of dollars to fix. At one of those hearings, Chairman Barton said, "NNSA was a management experiment gone wrong."

So here we are again today looking at ongoing challenges and issues facing the nuclear security enterprise in national labs and, more specifically, organizational and structural issues affecting the NNSA. What is different, however, is that rather than focusing on any particular mishap, we now today have a highly regarded group of experts who have authored two major reports with recommendations that can make the labs and the NNSA function better.

So at the outset, gentlemen, let me thank you for the work that you and your colleagues have done in this undertaking. Both reports, one that focuses on the labs as a whole and one that focuses on reforming the NNSA, offer an exceptional blueprint on what is needed to improve the functioning of the labs and the NNSA.

I am particularly interested in discussing the findings and recommendations by the Advisory Panel on the Governance of the Nuclear Security Enterprise. That panel, spearheaded by Admiral Mies and Mr. Augustine, concluded what many of us have long believed: the current structure of NNSA is not working. As stated in the interim report, the NNSA experiment involving creation of a semi-autonomous organization has failed.

Mr. Chairman, that is a sobering finding. NNSA is a critical agency, its weapons labs are responsible for the nation's nuclear deterrent, and as the panel pointed out, this is no time for complacency. That is because as the report also concludes, nuclear forces provide the ultimate guarantee against major war and coercion. It is time that Congress really rolls up its sleeves to address the multitude of problems that we have known about for far too long but have failed to correct.

The work of Mies-Augustine highlights several key areas where attention is needed. For example, the panel's final report concluded that the relationship between line managers and mission support staff at NNSA is broken and is damaging the management culture within the agency. The panel also found that there continues to exist, a dysfunctional relationship between the government and the contractors that operate NNSA sites which has created a dysfunctional form of oversight.

Finally, the panel concluded that the creation of NNSA as a separately organized, quasi-independent agency within DOE is not working. Again, I am particularly concerned about this last finding. The panel closely examined the current arrangement of NNSA as a semi-autonomous entity within DOE. It concluded that the solution was not to seek a higher degree of autonomy for the agency,

but to reintegrate it back into the DOE and place its mission on the shoulders of a qualified secretary.

Mr. Chairman, this is a very important hearing. I want to thank you for having it. But as I said it earlier this month at the hearing that we had on biodefense, we can't do justice with this topic with just one or two hearings. Today's panel reports, like the bioterrorism blueprint, offer us a road map for addressing the multitude of problems plaguing the labs and NNSA. I have seen this for 20 years now. We can't make progress if we don't conduct regular oversight of this agency and everything that it oversees.

So similar to our last hearing, I am asking that this panel follows through with the recommendations before us today and conducts aggressive oversight on all of these issues that are raised in these reports. NNSA's core mission is to develop and maintain the very tools and capabilities that keep our nation and allies secure. It is time we addressed these challenges, and what our panelists have provided to us are two of the best playbooks we have seen on these issues.

I will also say, like so many of the things this panel deals with this is a completely bipartisan issue. And so I think what we could do working forward is we could really do a deep bipartisan dive into this. We could help implement some of these panel's recommendations, and if we do the result of that is increasing our nation's security and I think that is the most important thing we could do. I yield back.

Mr. MURPHY. Well said. We don't have any more opening statements on our side. Do you have any more on your side?

Ms. DEGETTE. No.

Mr. MURPHY. If not, we will proceed with our panel. But I also want to ask unanimous consent that the members' written openings statements are introduced into the record, and without objection, the documents will be entered into the record.

So I would now like to introduce the witnesses for today's hearing. The first witness today on the panel is the Honorable Norman Augustine. Mr. Augustine is the retired chairman and CEO of Lockheed Martin. He has held positions in government, industry, academia, and nonprofit sector. He has been chairman of the National Academy of Engineering; was a 16-year member of the President's Council of Advisors on Science and Technology. Mr. Augustine is here today in his capacity as co-chair of the Congressional Advisory Panel on the Governance of the Nuclear Security Enterprise.

And we thank you, Mr. Augustine, for preparing your testimony and we look forward to your insights on these matters.

We also want to thank Admiral Richard W. Mies. I am a shipmate. I served in the Navy concurrently, and oftentimes this summer we would stand on the deck of the USS Ronald Reagan watching the submarine races at night. You can imagine the excitement of that because you are a submariner or two, right.

He is a distinguished graduate of the Naval Academy. Admiral Mies completed a 35-year career as a nuclear submariner in the U.S. Navy and commanded the U.S. Strategic Command for four years prior to retirement in 2002. Admiral Mies served as co-chair to the Congressional Advisory Panel on the Governance of the Nu-

clear Security Enterprise, and we thank him for his service to our country and look forward to learning from your expertise today.

Next, I would like to introduce Dr. Jared Cohon, a co-chair of the Commission to Review the Effectiveness of the National Energy Laboratories. Dr. Cohon is also president emeritus of Carnegie Mellon University, where I have gotten to know him over the years and have a great deal of respect, and he currently serves as director of the Wilton E. Scott Institute for Energy Innovation. In 2012, Dr. Cohon received the national engineering award for the National Association of Engineering Societies, and author, co-author or editor of more than 80 professional publications and a member of the National Academy of Engineering. We look forward to your testimony this morning.

And finally, we also welcome the Honorable TJ Glauthier, a former deputy secretary of the Department of Energy and current co-chair of the congressional Commission to Review the Effectiveness of the National Energy Laboratories. Mr. Glauthier is president of TJG Energy Associates, LLC, where he is an advisor and board member for public and private organizations to the energy sector.

During his distinguished career, Mr. Glauthier has been awarded medals for distinguished service from NASA, Department of Energy, and the executive office of the President and Office of Management and Budget. We appreciate his time today, and once again thank all the witnesses for being here.

As you are all aware, this committee is holding an investigative hearing, and when doing so has had the practice of taking testimony under oath. Do any of you object to testifying under oath? And seeing no objections, the chair then advises you that under the rules of the House and rules of the committee, you are entitled to be advised by counsel. Do you desire to be advised by counsel during your testimony today? And seeing no requests for that, in that case would you all please rise, raise your right hand, and I will swear you in.

[Witnesses sworn.]

Mr. MURPHY. Thank you. And all the witnesses have entered they do, so you are now under oath and subject to the penalties set forth in Title 18 Section 1001 of the United States Code.

We are going to start off with Mr. Augustine for your five-minute summary of your written statement. Turn the mike a little bit closer to you and watch the lights there, because when they turn red that means your five minutes is up. Thank you, sir.

STATEMENTS OF NORMAN AUGUSTINE, CO-CHAIRMAN, CONGRESSIONAL ADVISORY PANEL ON THE GOVERNANCE OF THE NUCLEAR SECURITY ENTERPRISE; ADMIRAL RICHARD MIES, U.S. NAVY (RETIRED), CO-CHAIRMAN, CONGRESSIONAL ADVISORY PANEL ON THE GOVERNANCE OF THE NUCLEAR SECURITY ENTERPRISE; JARED COHON, CO-CHAIRMAN, COMMISSION TO REVIEW THE EFFECTIVENESS OF THE NATIONAL ENERGY LABORATORIES; AND TJ GLAUTHIER, CO-CHAIRMAN, COMMISSION TO REVIEW THE EFFECTIVENESS OF THE NATIONAL ENERGY LABORATORIES

STATEMENT OF MR. AUGUSTINE

Mr. AUGUSTINE. Well, Mr. Chairman and Ranking Member, thank you very much for this opportunity to present the results of the Congressional Advisory Committee on the Governance of Nuclear Security Enterprise. And as you pointed out, Admiral Mies and I served as the co-chairs of that endeavor.

Our report was submitted about 15 months ago. It was put together by 12 members of our commission. It was unanimous. It drew upon many decades of experience of those 12 members. We reviewed thousands of pages of documents. We visited probably most of, if not all of the major facilities of the nuclear enterprise, and we had the benefit of a large number of witnesses that appeared before our group.

We should state at the outset in no uncertain terms that the viability of America's nuclear deterrent today is not questioned in any way. It is absolutely sound and based successfully on the efforts today of science based stockpile stewardship. No nation should question it.

On the other hand, in spite of the enormous technical innovation capabilities of NNSA scientists, in spite of their contributions to nonproliferation efforts, in spite of the truly enormously successful efforts of the Naval Reactors organization of NNSA, the remainder of NNSA to a very large degree is highly inefficient and has been poorly managed for many, many years as you have stated in your opening remarks.

At the time we did our work, Secretary Moniz and General Klotz had been here only a brief time. I would have to say they've made a great deal of progress since they took their offices, but they have a very long way yet to go.

We thought it would be useful to describe four major events that have occurred since we submitted our report that we believe validate it further, the findings and recommendations we made. The first of these of course would have to be that Russia and China and North Korea and others around the globe have been providing convincing proof that like it or not America's going to be in the nuclear deterrent business for as long as any of us can see.

A particular concern in that regard is the deteriorating firewall between conventional and nuclear warfare particularly as being espoused by Russia. Our nuclear deterrent forces are of the utmost importance in preventing strategic warfare and coercion that goes with it, and furthermore, our allies depend upon this nuclear umbrella, if you will, and should they have reason to doubt its viability,

ity they may well decide to provide their own nuclear capabilities, further leading to nuclear proliferation.

Secondly, the President's nuclear negotiations with Iran and the deep involvement of that in those negotiations of Secretary Moniz and the contributions made by the laboratories of the Department of Energy seem to reaffirm the importance of a close tie at the cabinet level of the Department of Energy given the importance of this issue and that this has been a very successful formula during this past year's negotiations.

Forty three percent of the DOE's budget pertains to the nuclear enterprise, and that would seem to suggest to us that it's all the more important that the Secretary of Energy have a background in nuclear matters as well as energy matters, furthermore that the Department be led by a person with scientific credentials and at the cabinet level.

Finally, the lessons of the so-called WIPP, or the Waste Isolation Pilot Plant, incident tend to underscore the need for a better operating culture in the nuclear security environment. You're familiar of course that in February of 2014, a drum containing radioactive waste ruptured inside of the WIPP facility. The DOE's own after-action review reads very much like our report did some time before that. There was a complex wave of responsibilities pointed out, lapses of leadership and accountability. I was asked by Secretary Chu to investigate the Y-12 incident with which you're all familiar, and I found exactly the same sort of issues there.

Finally, we would point out the need for your support in bringing about the reforms that are required in the NNSA endeavors. The words of one witness before our panel at that time said that the course to improve the nation's nuclear security enterprise seems clear and the National Nuclear Security Administration has not been on it. It will only be with your strong support and the President's strong support that we will be able to solve the sorts of problems that have been befuddling the nuclear security enterprise.

With that Mr. Chairman, with your permission I would turn to my colleague Admiral Mies who would describe some of the findings and the recommendations of our committee.

[The prepared statement of Mr. Augustine follows:]

Report of the Congressional Advisory Panel on the Governance of the Nuclear Security
Enterprise

Prepared Statement by Co-Chairman Mr. Norman Augustine

Mr Chairman and Ranking Member, thank you for the opportunity to discuss the findings and recommendations of the Congressional Advisory Panel on the Governance of the Nuclear Security Enterprise. As you know, Admiral Rich Mies and I served as its co-chairmen.¹

Congress tasked our Panel to broadly examine the performance of the Nuclear Security Enterprise and to consider alternatives. Our report was completed about 15 months ago, in November, 2014. The Panel's work relied on our twelve members' decades of experience of a broad scope dealing with Nuclear Enterprise issues; we reviewed thousands of pages of previous studies; we conducted on-site visits to numerous installations; and we benefitted from the views of dozens of expert witnesses, including officials in the Department of Energy, as well as in DOD, State, DHS, and the Intelligence Community. We benchmarked NNSA against proven management approaches used by other high-performing, high-technology organizations both in the private sector and in government. We appreciate the active engagement of our colleagues on the Panel and the candor of those we have interviewed.

Let us state at the outset that our panel found that the current viability of our nuclear deterrent is not in question. And, despite the flaws in management, which were the focus of our work, we have found examples of success in NNSA's endeavors. To date, Science-Based Stockpile Stewardship has succeeded in sustaining confidence in our nuclear deterrent. Extraordinary technical innovation on the part of NNSA's scientists and engineers has produced dramatically increased understanding of our aging nuclear weapon stockpile. The labs and plants are providing solid support to non-proliferation efforts and unique expertise to the Intelligence Community. NNSA's Naval Reactors organization continues to provide world class performance in the development and support of the most advanced naval nuclear propulsion systems in the world.

¹ The other Panel members are: Dr. Michael Anastasio, Admiral Kirkland Donald, U.S. Navy (ret.), Mr. T.J. Glauthier, The Honorable David Hobson, Dr. Gregory Jaczko, Dr. Franklin Miller, Dr. William Schneider, Jr., The Honorable John Spratt, Jr., The Honorable Ellen Tauscher, and The Honorable Heather Wilson.

At the same time, the governance and management structures and practices we observed were not on par with the quality of DOE's technical and engineering capabilities. Serious management lapses over the years have undermined NNSA's and DOE's credibility in Congress, in DOD, and in the other Agencies that rely on DOE. Our findings are consistent with those of numerous earlier studies, and they were recently reaffirmed by the Glauthier-Cohon Panel, which you will also hear from today. We concluded that DOE governance practices are most certainly inefficient and in some instances ineffective, putting the entire Enterprise at risk over the long term.

Our panel's members were unanimous in support of the panel's findings and recommendations—as they were in their sense of urgency for action. In a moment, my partner Admiral Rich Mies will discuss the specifics of our recommendations--the “New Foundations” for governance that we propose. But, before doing so, we both thought it important to provide four observations on developments in the 15 months since our report was issued. These developments serve to validate the panel's thinking and they underscore the need for national leaders in the White House, Congress, and the Department of Energy to play their part in placing the governance of the Nuclear Security Enterprise on a solid new foundation.

First, global events reinforce our conclusion that this is no time for complacency about the nuclear deterrent.

The actions of Russia, China, North Korea, and others around the globe provide convincing proof that, like it or not, the US will need to remain in the nuclear deterrent business for as far as we can see into the future. Of particular concern is the deteriorating firewall between nuclear and conventional warfare, particularly as espoused by Russia.²

² Regarding the annexation of Crimea, President Putin in March 2015 said, “(Crimea) is our historical territory. Russian people live there. They were in danger. We cannot abandon them. We were ready to do this (put nuclear forces on alert)... It was a frank and open position. And that is why I think no one was in the mood to start a world war.”

NATO Secretary General Jens Stoltenberg on 27 May 15 in a speech at CSIS describes the Alliance's concern: “Russia's recent use of nuclear rhetoric, exercises and operations are deeply troubling. . . . Russia's nuclear saber-rattling is unjustified, destabilizing, and dangerous.” Regarding Russia's announcement to base modern nuclear-capable missile systems in Kaliningrad and Russia's claim of its right to deploy nuclear forces in Crimea, the Secretary General said, “This will fundamentally change the balance of security in Europe.”

America's deterrent forces remain of utmost importance; they provide the ultimate guarantee against strategic warfare and coercion. Further, our allies depend on these forces and capabilities for extended deterrence and could well pursue their own nuclear weapon capabilities if they perceive the US commitment or competency to be weakening. Other countries carefully measure US resolve and technological might in making their own decisions about proliferation and nuclear force sizing. US leadership in nuclear science is something we cannot afford to lose. We, along with our allies, are in a complex nuclear age; with several nuclear powers modernizing their arsenals, new nuclear technologies emerging, and potential new actors--as well as regional challenges--raising significant concerns. This would be a dangerous time to stumble.

Second, the President's nuclear negotiations and agreement with Iran underscore the importance of having a Nuclear Security Enterprise that is led by a Cabinet Secretary--and one who is an accomplished technical leader with credentials in nuclear as well as energy matters.

The DOE and Secretary Moniz played critical roles in the Iran negotiations. By virtue of his education and experience, Energy Secretary Moniz played a central role in drawing on expertise across the entire DOE laboratory system to provide the best possible technical support, and to lend deep technical credibility in the conduct of the negotiations. Behind the scenes, the active and effective collaboration of a number of DOE labs was vitally important. Such collaboration is equally important to the nation, if not always visible to the public, in other areas such as High-Performance Computing.

The lessons of this experience are clear: the DOE is now on the front lines for national security, science, and energy technology. Fully 43 percent of its budget pertains to the nuclear capability of our nation. If DoE is to execute its missions effectively, the President and Congress must ensure the Department is provided the best possible technical and managerial leadership—from the Secretary down through the ranks. Given such strong, effective leadership, the Department must then be structured and managed to foster collaboration across the breadth of its science and technology fields. In our view, the desire among some to continue to isolate and insulate the weapons complex is moving in the wrong direction.

Third, the lessons from the WIPP (Waste Isolation Pilot Plant) incident underscore the vital need for DOE to establish an effective operating culture for the Nuclear Security Enterprise.

In February 2014, a drum with radioactive waste ruptured inside the WIPP facility. Phase II of DOE's after action-review (released in April 2015, following the release of our report) described the incident and its causes. This review described the complex web of responsibilities associated with the waste disposal project—along with resulting lapses in leadership and accountability—resulting in missed opportunities for preventing this preventable incident. I should note that I found similar issues with management complexity and lapses in accountability when I conducted an after-action review of the Y12 security incident for then Secretary Steven Chu. (As you'll recall, this event involved a nun and two accomplices who penetrated a protected area.) The operations within the Nuclear Security Enterprise are too demanding, the consequences of failure too high, and the mission too important to the nation, to tolerate a management system with the flaws evidenced by such periodic lapses. Our panel documented the behaviors of "high-reliability" organizations to distill the operating principles for reforming DOE's governance and management structures. Our recommendations would implement such a system as a priority. Fourth, the fundamental problems observed by the panel continue to dog the program:

- A lack of sustained national leadership focus and priority, starting with the end of the Cold War, has undermined the foundation for nuclear enterprise governance and contributes to virtually all of the observed problems;
- Inadequate implementation of the legislation establishing NNSA as a separately organized sub-element of DOE has resulted in overlapping DOE and NNSA headquarters staffs and blurred ownership and accountability for the nuclear enterprise missions;
- The lack of proven management practices, including a dysfunctional relationship between line managers and mission-support staffs, has undermined the management culture within NNSA;
- Dysfunctional relationships between the government and its Management and Operating (M&O) site operators has encouraged burdensome transactional oversight rather than management focus on mission execution;
- Insufficient collaboration between DOE/NNSA and their DOD weapons partners has generated misunderstanding, distrust, and frustration.

Fifth, the needed reforms of the Nuclear Security Enterprise will require national leadership.

Since the panel's report was issued, we have had a number of interactions with Secretary Moniz and his top management staff regarding the implementation of our recommendations. In all fairness, the needed reforms pose an ambitious, hands-on challenge--and the Secretary has had his hands full with the Iranian negotiations, the N Koreans, and other pressing matters. Actions have been taken to address our concerns in some areas, particularly to improve coordination and information sharing. Progress also has been made with the Life Extension Programs as well as in re-baselining the plans for the needed Plutonium and Uranium facilities. Despite these efforts, which are useful and needed, the unmistakable conclusion of the panel's work remains valid. In the words of one witness before our panel:

The course to improve the nation's nuclear security enterprise seems clear...and the National Nuclear Security Administration has not been on it.

Success is imaginable only with the strong and active engagement of a knowledgeable Secretary, supported by both the White House and Congress. It will take time, and considerable energy from those who will commit to this important cause.

Thank you, and with your permission Admiral Mies will address our recommendations.

Mr. MURPHY. Thank you. Your time has expired. We will now turn to Admiral Mies for 5 minutes.

STATEMENT OF ADMIRAL RICHARD MIES

Admiral MIES. Mr. Chairman and Ranking Member, let me add my thanks as well for giving the four of us the opportunity to testify. I'll try and briefly summarize the thrust of our recommendations in each of the five areas addressed in our report.

First, the first area is to strengthen national leadership focus, direction, and follow-through. And at the root of all the challenges faced by the nuclear enterprise, frankly, is the loss of focus on the nuclear mission since the end of the Cold War. Bluntly stated, nuclear weapons have become orphans in both the executive and legislative branches. And this lack of senior leadership attention has resulted in public confusion, congressional distrust, and a serious erosion of advocacy, expertise, and proficiency across the enterprise. Sustained national leadership attention is needed to rebuild the foundation.

Hence, our panel recommends first that the President adopt a number of new mechanisms designed to provide oversight and guidance to direct and align nuclear security enterprise-wide policies, plans, programs and budgets across the departments. Additionally, our panel recommends that Congress establish new mechanisms to strengthen and unify its oversight of the enterprise. Such efforts should seek improved coordination across missions as well as between authorizers and appropriators and thus better synchronize the work of multiple subcommittees. These recommendations include adding the Senate Armed Services Committee approval to the confirmation and reporting requirements for both the Secretary and Deputy Secretary of Energy.

Our second area is to solidify cabinet secretary ownership of the mission. Again as has been previously stated, despite the intent of the NNSA Act to create a separately organized NNSA within DOE, the act as implemented has failed to achieve the degree of clarity in enterprise roles and mission ownership.

In retrospect, this should come as no surprise. No cabinet secretary could be expected to relinquish control over a mission that constitutes over 40 percent of his department's budget, a mission that involves significant environmental safety and security risks, and a mission that produces a capability critical to our national security—a capability for which he or she is personally responsible to annually certify its safety, security and performance to the President.

In its deliberations, the panel explored a range of organizational options including the status quo and an independent agency, and we concluded that these were clearly inferior to placing the responsibility and accountability squarely on the shoulders of the secretary. Hence, our recommendations are designed to clarify the secretary's responsibilities for all of DOE's missions and to clear away the redundancies, confused authorities and weakened accountability that have resulted in the attempt to implement a separately organized NNSA within DOE.

To achieve the right leadership structure, a cabinet secretary who sets policy and then an operational director who's empowered

to implement the policy, our panel recommends amending rather than appealing the NNSA Act to replace the separately organized NNSA with a new office, an Office of Nuclear Security within the Department.

Additionally, we recommend that the secretary establish a management structure that aligns and codifies roles, responsibilities, authority, and accountability across DOE and eliminates redundant and overlapping DOE and NNSA staffs. And finally, we recommend that the secretary and director do a comprehensive reform of DOE regulations to strengthen risk management and adopt accepted industry standards where appropriate.

In the third area, we focus on adoption of proven management practices to build a culture of performance, accountability and credibility. And as our report describes, NNSA is an organization with many pockets of talented technically competent people operating within a dysfunctional culture. Our panel identified a number of management best practices based on high performing benchmark organizations that if implemented could bring about the needed reform, and prominent among them are a capable, empowered leadership with well defined roles and responsibilities.

Our panel's recommendations include adoption of industry best practices, strengthening program management and cost estimating expertise, simplification of budget controls, and development of a comprehensive plan to reshape the weapons complex and workforce. In the fourth area, we seek to maximize the contributions of the M&O organizations to perform a safe and secure mission execution.

Again that open collaboration and mutual trust that has historically existed has eroded over the past decade to an arm's length, customer to contractor and occasionally adversarial relationships, so our panel recommends a major reform of those relationships continuing on steps already begun by the current administration.

And finally, fifth, the fifth area is to strengthen partner collaboration to rebuild trust and a shared view of mission success. There's been a tremendous loss of credibility and trust with other stakeholders, primarily DoD and Congress, through insufficient communications, collaboration, and transparency. The enterprise can't succeed if they aren't aligned on major goals and priorities. So our panel recommends stronger collaboration between the Secretaries of Energy and Defense to foster better alignment and to strengthen the Nuclear Weapons Council and to increase the role of that Council in the drafting of Presidential guidance and an annual assessment to the NNSA.

I apologize for running over. In conclusion, there is little new in our panel's report. We inherited approximately 50 past studies and reviews of DOE and NNSA that reached very similar findings and recommendations regarding cultural, personnel, organizational, policy, and procedural challenges that have historically existed within the DOE and now NNSA. And many of these continue to exist because of a lack of clearer accountability, excessive bureaucracy, organizational stovepipes, lack of collaboration, and unwieldy, cumbersome process.

What DOE and NNSA need are robust, formal mechanisms to evaluate findings, assess underlying root causes, analyze alter-

native courses of actions, formulate appropriate corrective action, and effectively implement enduring change.

Let me just emphasize that our panel's findings and recommendations emphasize the need for cultural change rather than simple organizational ones. I personally believe it was naive of Congress to think that by simply creating NNSA as a semi-autonomous organization they could legislate an enduring solution without addressing the more fundamental, underlying cultural problems. I believe we have a unique opportunity now under Secretary Moniz. He's an individual well qualified in national security with previous DOE experience who cares passionately about the nuclear security mission and who's surrounded by an exceptionally strong leadership team.

What is not needed is a congressional mandate for more studies. What we really need is congressional support to help enable Secretary Moniz to make the bold and decisive changes that are necessary so those changes can be institutionalized beyond his tenure. Thank you for your time.

[The prepared statement of Admiral Mies follows:]

Report of the Congressional Advisory Panel on the Governance of the Nuclear Security
Enterprise

Prepared Statement by Co-Chairman, Admiral Richard Mies, U.S. Navy (Retired)

Mr Chairman and Ranking Member, let me add my thanks as well for giving the four of us the opportunity to testify. My remarks are intended to provide some specifics on our panel's recommendations within the context of my Co-Chair's overall characterization of the health surrounding the Enterprise. I will summarize the thrust of our recommendations in each of the five major areas addressed in our report. In sum, we had 19 major recommendations with a number of specific action items associated with each recommendation. A table summarizing the panel's recommendations is attached.

First: Strengthen National Leadership Focus, Direction, and Follow-Through

(Recommendations 1 and 2)

At the root of the challenges faced by the nuclear enterprise is the loss of focus on the nuclear mission since the end of the Cold War. Every aspect of the enterprise is colored by the fact that, bluntly stated, nuclear weapons have become orphans in both the Executive and Legislative branches. This lack of senior leadership attention--both civilian and military--has resulted in public confusion, Congressional distrust and a serious erosion of advocacy, expertise, and proficiency across the nuclear security enterprise. As Norm said earlier, there are recent signs of positive change--and sustained national leadership attention is needed to build a new foundation for the enterprise.

Our panel recommends that the President adopt a number of new mechanisms designed to provide oversight and guidance to direct and align nuclear security enterprise-wide policies, plans, programs and budgets across Departments. Annual joint OMB budget reviews and joint NSC program reviews, for example, would provide mechanisms for better aligning DOE and DOD programs, policies, and budgets.

Additionally, our panel recommends that Congress establish new mechanisms to strengthen and unify its leadership and oversight of the nuclear enterprise and its missions. Such efforts should seek improved coordination across missions as well as between authorizers and appropriators and thus better synchronize the work of multiple subcommittees to provide a more focused jurisdiction. These recommendations include adding the Senate Armed Service Committee approval to the confirmation and reporting requirements for both the Secretary and Deputy Secretary of DOE.

Second: Solidify Cabinet Secretary Ownership of the Mission

(Recommendations 3–5)

Despite the intent of the NNSA Act to create a separately organized NNSA within DOE, the Act as implemented has failed to achieve the degree of clarity in enterprise roles and mission ownership. In retrospect this should come as no surprise: no Cabinet Secretary could be expected to relinquish control over a mission that constitutes over 40% of the Department's budget; a mission that involves significant environmental, safety, and security risks, associated with potential management failures; and a mission that produces a capability critical to our national security—a capability for which he or she is personally responsible to annually certify its safety, security, and performance to the President. The panel explored a range of organizational options, including the

status quo and an independent agency, and concluded that these were clearly inferior to placing the responsibility and accountability squarely on the shoulders of the Secretary.

Hence our recommendations are designed to clarify the Secretary's responsibilities for all of DOE's missions, and to clear away the redundancies, confused authorities, and weakened accountability that have resulted in the attempt to implement a "separately organized" NNSA within DOE. To achieve the right leadership structure—a Cabinet Secretary who sets policy and an operational Director who is empowered to implement the policy—the panel recommends amending, rather than repealing the NNSA Act to replace the "separately-organized" NNSA with a new Office of Nuclear Security (ONS) within the Department. ONS would be charged with performing the missions currently performed by NNSA.

Central to this reform is to establish the Director of ONS as the unquestioned line-management authority for safe, secure, and environmentally responsible nuclear security mission execution. Our report outlines an approach that would provide for the sustained leadership necessary to bring needed continuity and mission focus to the enterprise.

Additionally we recommend that the Secretary establish a management structure that aligns and codifies roles, responsibilities, authority and accountability across DOE and eliminates redundant and overlapping DOE and NNSA staffs.

Finally we recommend that the Secretary and Director reform DOE regulations to strengthen risk management, adopt accepted industry standards where appropriate, and improve DOE's ability to interact with and respond to the Defense Nuclear Facilities Safety Board.

Third: Adopt Proven Management Practices to Build a Culture of Performance, Accountability, and Credibility

(Recommendations 6–13)

As our report describes, DOE/NNSA is an organization with many pockets of talented, technically competent people operating within a culture that lacks a unifying focus on mission deliverables, is risk averse, has poorly defined chains of command, lacks strong career development programs, and has an inflexible budget structure that impedes mission execution. A major overhaul is needed to transform the organization into one with a mission-driven management culture.

Our panel identified a number of management best practices, based on high-performing benchmarked organizations that, if implemented effectively, would bring about the needed reforms. Prominent among them are a capable, empowered leadership with well-defined roles and responsibilities; clear plans with careful analysis of the resources needed to succeed; a clear line-management structure; strong program managers focused on mission deliverables; effective communications; a focus on conveying effective incentives to mission partners; and clear accountability.

The panel's recommendations include adoption of industry best practices; strengthening program management and cost estimating expertise, tools and procedures; simplification of the budget and accounting controls; and development of a comprehensive plan to reduce the deferred maintenance backlog and reshape the weapons complex and workforce to meet future needs.

Fourth: Maximize the Contributions of the Management and Operating (M&O) Organizations to the Safe, Secure Execution of the Mission

(Recommendations 14–17)

The open communication, close collaboration, and mutual trust that historically existed between the M&Os and Federal officials have eroded over the past two decades to an arm's length, customer-to-contractor and, occasionally, adversarial relationship. In the case of the laboratories, this has led to a significant loss in their contributions, contributions which in the past stemmed from the strength of the special Federally Funded Research and Development Center (FFRDC) relationship.

Our panel recommends a major reform of the government-M&O relationships, building on steps already begun by the current leadership. Award fees have diverted substantial energy and resources from mission execution; these fees should be replaced by fixed fees that fairly compensate the M&O organizations for their investments in the enterprise and for both their financial and reputational risks. Contract term extensions should be the main vehicle used to encourage M&O performance. DOE must define a collaborative relationship that attracts the best performers and emphasizes taking full advantage of the M&Os' ability to provide skilled personnel and strong management cultures, as well as proven systems, processes, and practices for effective and efficient mission execution. In order to rebuild trust and credibility, our panel recommends that the Secretary and Director take action to better standardize contract provisions where appropriate, eliminate wasteful and ineffective transactional oversight through reform of the field office staffing levels and procedures, and reduce the number of audits, inspections, and formal data calls and better synchronize those that remain,

And finally, fifth: Strengthen Partner Collaboration to Build Trust and a Shared View of Mission Success

(Recommendations 18 and 19)

DOE/NNSA has suffered a loss of credibility and trust with other nuclear security enterprise stakeholders, primarily DOD and Congress, through insufficient

communications, collaboration, and transparency. The nuclear security enterprise cannot succeed if participants are distrustful of one another and are seen to be divided on major goals and priorities. Our panel recommends stronger collaboration between the Secretaries of Energy and Defense to foster better alignment of the planning, resourcing, sustainment and modernization of DOE's nuclear weapon programs with DOD's strategic deterrent delivery system programs. Our recommendations include actions to strengthen the role of the Standing and Safety Committee that supports the Nuclear Weapons Council and to increase the role of the Nuclear Weapons Council in the drafting of Presidential guidance and in an annual assessment to the NSC on the nuclear security enterprise's progress on meeting Presidential guidance.

In conclusion, there is little new in our panel's report. We inherited approximately 50 past studies and reviews of DOE/NNSA. Of greatest concern, our panel found that many of the past studies and reviews of DOE/NNSA reached similar findings and recommendations regarding the cultural, personnel, organizational, policy and procedural challenges that have historically existed within DOE and now NNSA. Many of these continue to exist because of a lack of clear accountability, excessive bureaucracy, organizational stovepipes, lack of collaboration, and unwieldy, cumbersome processes. What is needed within DOE/NNSA are robust, formal mechanisms to evaluate findings, assess underlying root causes, analyze alternative courses of action, formulate appropriate corrective action, gain approval, and effectively implement enduring change.¹ As a sign of Secretary Moniz's commitment to that end, he has asked Dick Meserve and me to co-chair a sub-panel of the Secretary's Advisory Board to assess progress on the Department's response to the findings and

¹ Fifteen months ago, our report concluded that reasonably prompt action would lead to measurable progress in a matter of months; we identified a number of specific indicators to expect. The Panel's final recommendation was to conduct follow-on reviews to assess the status of reform progress.

recommendations of our reports.

Our panel's findings and recommendations emphasize the need for cultural changes rather than simply organizational ones. I personally believe it was naïve of Congress to think that by simply creating NNSA as a semi-autonomous organization they could legislate an enduring solution without simultaneously encouraging DOE to address the more fundamental, underlying cultural problems.²

We concluded that lasting reform requires aggressive action and sustained implementation in all five of the aforementioned areas. But, national leadership engagement is really the common theme. Governance reform within DOE/NNSA is a daunting challenge. But there is also a unique opportunity under Secretary Moniz--an individual well qualified in national security, with previous DOE experience, who cares passionately about the nuclear security mission, and is surrounded by an exceptionally strong leadership team. What is not needed is a Congressional mandate for more studies. What is needed is Congressional support to help enable Secretary Moniz to make the bold and decisive cultural changes needed so they can be institutionalized beyond his tenure.

Thank you for your time and we look forward to your questions.

² As I wrote in a previous report: "Committed, well trained, and experienced people can overcome organizational deficiencies; but no organizational improvements can overcome uncommitted, poorly trained, or inexperienced people. "

Table of Recommendations

Strengthen National Leadership Focus, Direction, and Follow-Through	
1. The President should provide guidance and oversight sufficient to direct and align nuclear security policies, plans, programs, and budgets across Departments.	1.1 The President should reaffirm the importance of the mission and align DOE&NS and DOD priorities through an expanded President's annual stockpile guidance.
	1.2 The President should require annual OMB joint budget reviews to shape and align DOE&NS and DOD programs and budgets.
	1.3 The President should require annual NSC joint program reviews to shape and align DOE&NS and DOD programs and policies.
2. Congress should establish new mechanisms to strengthen and unify its leadership and oversight of the nuclear enterprise and its missions.	2.1 Congress should add Senate Armed Services Committee approval to the confirmation and reporting requirements for the Secretary and Deputy Secretary of DOE&NS (and continue to have the Director, ONS be approved by the Senate Armed Services Committee).
	2.2 Congress should require the Secretary to testify annually on the health of the enterprise, and on progress in reforming its governance, to the Senate Energy and Natural Resources and Senate Armed Services Committees, and to the House Energy and Commerce and House Armed Services Committees.
	2.3 Congress should implement information sharing and collaboration mechanisms to unify and strengthen its mission-focused oversight across cognizant committees and to better harmonize direction and oversight across the enterprise's mission areas.
Solidify Cabinet Secretary Ownership of the Mission	
3. Congress should amend the NNSA Act and related legislation to clarify Departmental leadership roles.	<ul style="list-style-type: none"> The Secretary "owns" the nuclear enterprise missions, sets Departmental policy for the nuclear enterprise, and is accountable to the President and Congress for the enterprise. The Director, Office of Nuclear Security (ONS) has full authority to execute the nuclear enterprise missions consistent with the Secretary's policy. Departmental mission-support staffs advise and assist the Director in executing enterprise missions.
	3.1 The amended legislation should specify the Secretary's leadership responsibilities and define duties that underscore the Secretary's accountability for the nuclear enterprise and its missions.
	3.2 The amended legislation should create the Office of Nuclear Security (ONS) within the Department to perform the missions currently assigned to NNSA.
	3.3 The amended legislation should designate a Director, Office of Nuclear Security with full authority to execute nuclear enterprise missions under the policy direction of the Secretary. The Director should have tenure of at least six years, be compensated at the rate of Executive Schedule Level II, and hold the Departmental rank of a Deputy Secretary or Under Secretary. ³

³ The panel recommends the Director hold either the rank of Deputy Secretary or Under Secretary, but did not agree on a specific rank.

<p>3.4 The amended legislation should assign risk acceptance authority and accountability to the Director for ONS mission execution.</p> <p>3.5 The amended legislation should grant the Director authority to appoint senior officials in ONS, including the conversion of three Senate-confirmed direct-report positions (Principal Deputy, Assistant Secretary for Defense Programs, and Assistant Secretary for Non-Proliferation Programs) to Senior Executive Service or Excepted Service positions.</p> <p>3.6 The amended legislation should emphasize the importance of the nuclear enterprise missions, by changing the name of the Department to the "Department of Energy and Nuclear Security."</p>	<p>4. The Secretary should implement Departmental management processes that specify the Director's authorities for executing nuclear enterprise missions. These authorities include:</p> <ul style="list-style-type: none"> • Line management authority for the safe, secure, and environmentally responsible execution of nuclear security missions • Management authority for mission-support staffs assigned to the Office of Nuclear Security • Concurrence authority for Departmental rulemaking on ONS matters <p>4.1 The Secretary should establish decision-making practices among the senior headquarters staffs that codify the Director's authority to execute the nuclear security missions consistent with the Secretary's policies.</p> <p>4.2 The Secretary should establish a matrix management structure that</p> <ul style="list-style-type: none"> • Aligns and codifies roles, responsibilities, authority, and accountability • Specifies the Director's leadership authority over line-management and mission-support ("functional") staffs assigned to ONS • Eliminates overlapping headquarters staffs <p>4.3 The Secretary should adopt processes defining the Director's role in ensuring applicable DOE&NS policies, rules, and orders are compatible with the operating circumstances of the nuclear security enterprise.</p> <p>4.4 The Secretary should designate those senior headquarters positions that have line-management decision authorities and those that are responsible for mission-support functions.</p>
<p>5. The Secretary and Director should reform DOE regulation to strengthen risk management.</p> <p>5.1 The Secretary should strengthen the Department's analytical expertise and processes for assessing risks, especially for nuclear and other high-hazard functions.</p> <p>5.2 The Secretary should direct a comprehensive review and reform of the Department's ES&H and Security Orders and Directives to reflect best industry practices.</p> <p>5.3 The Secretary (with Congressional concurrence) should establish a mechanism to improve the Department's ability to respond to inquiries, findings, and recommendations of the Defense Nuclear Facilities Safety Board.</p>	

Adopt Proven Management Practices to Build a Culture of Performance, Accountability, and Credibility	
<p>6. To begin reforming the DOE&NS culture, the Secretary and Director should develop within six months a plan for continuous management learning and improvement, including an implementation plan for the panel's recommendations with milestone target dates.</p> <p>6.1 The Secretary and Director should urgently develop a more robust, integrated DOE&NS/ONS-wide process to provide accountability and follow-up on findings and recommendations from studies and reviews, both internal and external.</p> <p>6.2 The Secretary and Director should establish management metrics for assessing and improving enterprise management.</p> <p>6.3 The Secretary and Director should routinely survey personnel to gauge morale, assess cultural changes, and identify the results of efforts to change management practices.</p> <p>6.4 The Secretary and Director should aggressively communicate reform plans and objectives.</p>	
<p>7. The Secretary and Director should implement industry best practices for shaping and building the enterprise workforce.</p> <p>7.1 The Secretary and Director should establish strong career and leadership development programs, require rotational assignments, and place greater emphasis on continuing education and professional certifications.</p> <p>7.2 The Secretary and Director should reshape staffs as needed to implement governance reforms.</p> <p>7.3 The Secretary and Director should conduct a zero-based personnel review to right-size government staffs consistent with recommended reforms and changing workload since the end of the Cold War; this review should include the consolidation of headquarters activities across DOE&NS's Forrestal headquarters, the Germantown campus, and the Albuquerque complex.</p>	
<p>8. The Secretary should establish trusted Cost Analysis and Resource Management staffs, tools, and data; the Director should be responsible for this process in ONS.</p> <p>8.1 The Secretary and Director should strengthen the Department's efforts to develop independent cost and resource analysis capabilities.</p> <p>8.2 The Secretary and Director should employ a rigorous Analyses of Alternatives process during program formulation as the basis for assessing and validating program requirements.</p> <p>8.3 The Secretary and Director should take advantage of established DOD resource analysis capabilities in establishing DOE's cost analysis and resource management capabilities.</p>	
<p>9. The Director should establish a simple, clear line-management operating structure that both synchronizes activities across programs, mission-support functions, and operating sites and provides leadership focus for key programs.</p> <p>9.1 The Director should create operational mechanisms to perform the key synchronization functions that used to be performed by the Albuquerque Operations Office.</p> <p>9.2 Deputy Directors should be designated to lead in the integrated planning and execution of programs in their mission areas of responsibility.</p> <p>9.3 The Deputy Director responsible for Life Extension Programs, working with DOD, should create a long-term operating plan to support the nation's warhead modernization strategy; this plan should be designed to create a relatively stable, long-term workload.</p>	

<p>10. The Director should establish program managers who are provided necessary authorities and resources, and who are held accountable for major mission deliverables.</p> <p>10.1 The Director, in coordination with the responsible Deputy Director, should designate program managers for each Life Extension Program and major construction project.</p> <p>10.2 Program managers should be held accountable to employ effective management practices.</p> <p>10.3 The Director should delegate to the program managers control of any funds identified as uniquely required to execute their programs.</p> <p>10.4 The Director should delegate control over personnel assigned to their programs to the program managers.</p>
<p>11. The Congress, Secretary, and Director should adopt a simplified budget and accounting structure (by reducing budget control lines) that aligns resources to achieve efficient mission execution while providing sufficient visibility to enable effective management oversight.</p> <p>11.1 Congress should reduce the number of Congressional budget control lines to the number of major programs plus major mission-support functions.</p> <p>11.2 The Director should reduce ONS's internal budget control lines to the minimum number needed to assign funding for major programs and mission-support activities across the sites.</p> <p>11.3 Infrastructure funding that is uniquely required for the execution of Life Extension Programs should be integrated into the portfolio of the Deputy Director for Defense Programs.</p>
<p>12. The Director should develop a strategy and plan to reshape the weapons complex to meet future needs.</p> <p>12.1 The Director should ensure that the strategy and plan identify and address the deferred maintenance backlog.</p> <p>12.2 The Director should ensure that the strategy and plan match (and, in many cases, reduce) the infrastructure needed to meet requirements.</p> <p>12.3 The Director should ensure that the strategy and plan identify investments in the needed skills in the workforce.</p> <p>12.4 The Director should ensure that the strategy and plan specify investments in capabilities, including the sites' use of internally directed research and development. The panel recommends Laboratory Directed Research and Development (LDRD) funding of no less than 6 percent, which is needed to sustain leadership in nuclear science, engineering, and manufacturing.</p>
<p>13. The Secretary and Director should continue ongoing efforts to improve construction project management capabilities (at all levels) by introducing disciplined management practices in order to recapitalize infrastructure on time and on budget.</p> <p>13.1 The Director should strengthen infrastructure project management skills, tools, and the collection and analysis of data.</p> <p>13.2 The Director should build on recent efforts to adopt best practices for managing infrastructure projects, especially the use of external peer review.</p> <p>13.3 The Secretary and Director should hold managers accountable for adopting the effective practices detailed in the Department's directive on project management (Order 413), consistent with the principles provided in OMB Circular A-11 in infrastructure projects.</p>

Maximize the Contributions of the Management and Operating (M&O) Organizations to the Safe, Secure Execution of the Mission	
<p>14. The Director should reform M&O contracts, replacing the award fee structure with fixed fees for longer (multi-year) award terms and linking performance incentives to the contractual period of performance.</p> <p>14.1 The Director should adopt market-based fixed fees for new M&O contracts commensurate with M&O-borne risks, M&O investments in the enterprise, and the scale of the undertaking.</p> <p>14.2 Where practicable, the Director should convert existing contracts to similar fixed fee arrangements.</p> <p>14.3 The Director should base decisions to extend an M&O contract's period of performance primarily on contributions to mission performance; unsatisfactory performance should lead to early termination.</p> <p>14.4 The Director should seek greater standardization of contract provisions across similar entities.</p>	
<p>15. The Secretary and Director should reinforce the M&O parent organizations' obligations to contribute to enterprise management improvement initiatives.</p> <p>15.1 The Director should create collaborative mechanisms to strengthen the joint contributions of the M&O organizations in improving the effectiveness and efficiency of enterprise operations.</p> <p>15.2 The Director should task M&O organizations to identify and assess management improvement opportunities, both for mission execution and for mission-support functions.</p>	
<p>16. The Secretary and Director should eliminate wasteful and ineffective transactional oversight.</p> <p>16.1 The Secretary and Director should direct a reduction in the number of audits, inspections, and formal data calls, and better synchronize those that remain.</p> <p>16.2 The Secretary and Director should eliminate transactional oversight in areas where there are better mechanisms for certifying contractor performance, to include reform of the field office's staffing levels and performance criteria.</p>	
<p>17. The Secretary, Director, and the National Laboratory Directors should adopt management practices that serve to rebuild the strategic Government-FFRDC relationship.</p> <p>17.1 The Secretary and Director should continue to reinvigorate the strategic dialog with the Laboratory Directors.</p> <p>17.2 Leaders in both the government and M&Os should prescribe and enforce behaviors that rebuild credibility and trust.</p> <p>17.3 The appropriate government officials (e.g., Deputy Directors, program managers) should meet at least monthly with the M&O leadership, and preferably have daily informal interactions.</p>	

Strengthen Customer Collaboration to Build Trust and a Shared View of Mission Success	
<p>18. The Secretary should collaborate with the Secretary of Defense to better align the planning, funding, and execution of sustainment and modernization programs for nuclear weapons and their supporting infrastructure with DOD's delivery platforms.</p>	
<p>18.1 The Department Secretaries should direct activities that foster collaboration and communications among the principals and staffs supporting the Nuclear Weapons Council (NWC).</p>	
<p>18.2 The Department Secretaries, supported by the chairman and members of the NWC, should reinvigorate its working-level elements.</p>	
<p>18.3 The Department Secretaries should establish transparent information sharing mechanisms and increase direct staff collaboration on a daily basis to address persistent communications and trust issues.</p>	
<p>18.4 The Department Secretaries should confer on each Department's proposed co-chair to the Standing and Safety Committee (SSC), which reports to the NWC.</p>	
<p>18.5 The Department Secretaries should involve the NWC in drafting and reviewing the annual assessment to the NSC of progress on meeting Presidential guidance.</p>	
<p>18.6 The Director should strengthen the roles, responsibilities, and accountability of the senior military officer assigned to ONS in order to improve DOE&NS-DOD collaboration.</p>	
<p>19. The Secretary and Director should align and streamline processes for collaboration with Interagency customers.</p>	
<p>19.1 The Secretary, working through the Mission Executive Council, should improve coordination for planning and executing Interagency Work.</p>	
<p>19.2 The Mission Executive Council should annually conduct a review of the execution of Interagency Work across the nuclear security enterprise to identify improvement opportunities in working relationships, collaborative mechanisms, and management practices.</p>	

Mr. MURPHY. I thank the gentleman. Because you are an admiral and not a commander I let you run over for a few minutes.

Dr. Cohon, I think you are going to testify for both yourself and on behalf Mr. Glauthier, so you are recognized now for your testimony.

STATEMENT OF JARED COHON

Mr. COHON. I will indeed. Thank you, Mr. Chairman. And my understanding is I'll be granted 10 minutes since I'm speaking on behalf of both of us?

Mr. MURPHY. Yes.

Mr. COHON. Thank you. Well, good afternoon, Chairman Murphy, Ranking Member DeGette, Vice Chairman McKinley, other members of the subcommittee, and others interested in the national energy laboratories. We're very pleased to be here to discuss the final report of the Commission to Review the Effectiveness of the National Energy Laboratories.

Congress created the Commission in the fiscal year 2014 Appropriations Act. The President's Council of Advisors on Science and Technology, or PCAST, developed a list of potential nominees, and the Secretary of Energy selected the nine commissioners from that list. The two of us, TJ and I, served as the co-chairs of the Commission for almost 18 months. We were privileged to serve with an outstanding group of commissioners with strong backgrounds in the science and technology enterprise of this nation.

We're pleased that it was a consensus report. We received excellent cooperation and support from DOE, other relevant congressional committees, the White House, the national laboratories themselves, and many others. During the course of our work we visited all 17 national laboratories, heard from 85 witnesses in monthly public hearings in the field and here in Washington, and reviewed over 50 previous reports on this topic from the past four decades.

We entitled our report, "Securing America's Future: Realizing the Potential of the National Energy Laboratories." Our overall finding is the national laboratory system is a unique resource that brings great value to the country in the four mission areas of the DOE: nuclear security, basic science research and development, energy technology research and development, and environmental management. However, our national lab system is not realizing its full potential.

Our Commission believes that can be changed. We provide 36 recommendations that we believe, if adopted, would help the labs become more efficient and effective and have even greater impact, thereby helping secure America's future in the four mission areas of the DOE. Our most fundamental conclusions deal with the relationship between the DOE and the national labs. We find that the trusted relationship that is supposed to exist between the federal government and its national labs is broken and is inhibiting performance as you just heard from Admiral Mies. We note that the problems come from both sides, the labs and the DOE.

We want to be clear though. We want to emphasize that this situation is not uniform across the labs. In particular, the labs that are overseen by the Office of Science generally have a much better

relationship with the DOE than do those in other program offices. Many of our recommendations address this fundamental problem. We conclude that the roles need to be clarified and reinforced, going back to the formal role of the labs as federally funded research and development centers. Under this model, the two parties are supposed to operate as trusted partners in a special relationship with open communication.

DOE should be directing and overseeing its programs at a policy level specifying what its programs should achieve. The labs for their part should be responsible for determining how to carry out and to achieve what the DOE has identified. In doing so, the labs should have more flexibility than they do now to implement those programs without needing as many approvals from DOE along the way. In return of course, the labs must operate with transparency and be fully accountable for their actions and results.

This flexibility, in our view, should be expanded significantly in areas such as the ability to manage budgets with fewer approval checkpoints; managing personnel compensation and benefits; entering into collaborations with private companies including small businesses without having each agreement individually approved and written into the lab's contract; building office buildings on sites that are not nuclear, not high hazard and not classified; conducting site assessments that are relied upon by DOE and others to minimize redundant assessments; and sending key personnel to professional conferences to maintain DOE's work in leading edge science and for their professional development.

In the congressional charge to us, we were asked to examine whether there was too much duplication among the national laboratories. We looked into this in detail and have included two recommendations in this area. The first regards the NNSA laboratories, where we conclude that it is important to the nation's nuclear security that the two design labs and their capabilities continue to be maintained in separate and independent facilities.

The second recommendation in this area regards the way the Department manages through the life cycle of R&D topics from conception to maturity. In our view, the DOE does a good job of encouraging multiple lines of inquiry into the early discovery stages of new subjects and they're good at using expert panels and strategic reviews to manage mature programs. However, at the in-between stages, the Department needs to assert its strategic oversight role earlier and more forcefully to manage the laboratories as a system in order to achieve the most effective and efficient overall results.

Let me turn to some of our recommendations for how we believe Congress can help to improve the performance of our national labs. We'd like to cite four in particular here in our opening statement. First, we conclude that the Laboratory Directed Research & Development, or LDRD, is vitally important to the labs' ability to carry out their missions successfully, and we recommend that Congress restore the cap on LDRD funding to the functional level that it was historically up until the year 2006.

Second, to support strong collaboration between businesses and the national laboratories, Congress may need to take action to clarify that the labs have sufficient authority to enter into CRADAs

and other forms of collaboration with domestic companies without DOE approval of each one.

Third, we urge Congress to continue to recognize the importance of the role of national labs in building and operating user facilities for use by a wide range of researchers in universities, other federal agencies and the private sector.

Fourth, there does seem to be a serious shortfall in funding for facilities and infrastructure at the national labs. However, the scope and severity of that shortfall are not well defined. We recommend that the Congress work closely with DOE and OMB to agree, first, upon the size and the nature of the problem, and then upon a long term plan to resolve it through a combination of additional funding, policy changes and new innovative financing mechanisms.

We'd especially like to highlight our final recommendation. We found that in our past four decades there have been over 50 previous commissions, panels, and studies on the national labs, as you know well. It's our view that Congress and the Administration would be better served by some sort of standing body of experienced people who could provide perspective and advice on issues relating to the national laboratories without having to create new commissions or studies every time.

Since releasing our report in late October, we've been very interested in what actions DOE is taking to follow up on our findings and recommendations. We're encouraged that Secretary Moniz and the current lab directors seem truly committed to reforming the relationship between DOE and the national labs to restore trust and transparency. In the past few days, the secretary has sent to Congress his response to our report. Overall, he is quite supportive of our recommendations and he and his staff have provided a very thoughtful and detailed explanation of actions they have taken and are taking in a continuing way in every area of our report.

We the Commission are encouraged by these actions and intentions, but we recognize, as do you, the problems that the labs have developed over many years and they won't be reversed quickly. We urge the Congress to support all of the efforts that the secretary and future secretaries have taken and will take, and to hold them accountable for meaningful changes in all of the areas that we've addressed.

We do want to add one final comment before closing. As I just noted a little while ago, we recommended the creation of an independent standing body which would provide oversight of the implementation of our recommendations and ongoing advice to Congress as well as to the secretary. The secretary's response to Congress indicates that he plans to utilize existing committees including the Secretary of Energy Advisory Board, or SEAB, rather than create a new independent body.

The Commission supports this for creating advice and ongoing advice to the secretary, but notes that no existing body including SEAB can provide the independent advice to Congress which we envision. On behalf of our nine commissioners, we want to thank you for this opportunity to serve the country on this important Commission. We hope our work will be helpful, and we're happy to

answer questions and to discuss our findings and recommendations. Thank you very much.

[The prepared statement of Mr. Cohon follows:]

Testimony

TJ Glauthier and Jared Cohon, Co-Chairs
Commission to Review the Effectiveness of
the National Energy Laboratories

Subcommittee on Oversight and Investigations
Committee on Energy and Commerce
U.S. House of Representatives

February 24, 2016

Good afternoon, Chairman Murphy, Ranking Member DeGette, Vice Chairman McKinley, other Members and staff of the Subcommittee, and others interested in the National Energy Laboratories. We are pleased to be here to discuss the final report of the Commission to Review the Effectiveness of the National Energy Laboratories.

Congress created the Commission in the FY2014 Omnibus Appropriations Act. The President's Council of Advisors on Science and Technology developed a list of potential nominees, and the Secretary of Energy selected the nine Commissioners from that list.

The two of us served as the co-chairs of the Commission for almost 18 months. We were privileged to serve with an outstanding group of Commissioners with strong backgrounds in the science and technology enterprise of the nation.¹ We are pleased that this is a consensus report. We received excellent cooperation and support from the Department of Energy, all the relevant Congressional committees, the White House, the National Laboratories themselves, and many others.

During the course of our work, we visited all of the 17 National Laboratories, heard from 85 witnesses in monthly public hearings in the field and here in Washington, DC, and reviewed over 50 previous reports on this topic from the past four decades.

We have titled our report, ***"Securing America's Future: Realizing the Potential of the National Energy Laboratories."*** Our overall finding is that the national laboratory system is a unique resource that brings great value to the

¹ The other commissioners are: Norman Augustine, Wanda Austin, Charles Elachi, Paul Fleury, Susan Hockfield, Richard Meserve, and Cherry Murray

country in the four mission areas of the Department of Energy: nuclear security, basic science R&D, energy technology R&D, and environmental management.

For example, the National Labs have four of the world's fastest supercomputers, which are helping the nation extend the lifetimes and safety of our nuclear warheads without nuclear testing. In basic science, their world-class particle accelerators, light sources and other user facilities host over 30,000 researchers every year from universities and industry. And in energy technology R&D, the labs have played an important role in helping to develop the innovations that have led to the nation's shale gas revolution and surge in wind and solar energy.

However, our National Lab system is not realizing its full potential. Our commission believes that can be changed. We provide 36 recommendations that we believe, if adopted, will help the labs to become more efficient and effective and have even greater impact, thereby helping secure America's future in the four mission areas of the Department of Energy.

We'd like to highlight a few of our major findings and recommendations, and then would be happy to address any others of particular interest to you.

Our most fundamental conclusions deal with the relationship between the Department of Energy and the National Labs. We find that the trusted relationship that is supposed to exist between the federal government and its National Labs is broken and is inhibiting performance. We note that the problems come from both sides, the Labs and DOE.

We want to be clear that this situation is not uniform across all of the Labs. In particular, the Labs that are overseen by the Office of Science generally have much better relationships with the DOE than do those in the other program offices.

Many of our recommendations address this fundamental problem. We conclude that the roles need to be clarified and reinforced, going back to the formal role of the labs as Federally Funded Research and Development Centers for the Department of Energy. Under this model, the two parties are supposed to operate as trusted partners in a special relationship with open communication.

DOE should be directing and overseeing its programs at a policy level, specifying "*what*" its programs should achieve. The Labs, for their part, should be responsible for determining "*how*" to carry them out, and then executing those plans. In doing so, the Labs should have more flexibility than they do now to implement those programs, without needing as many approvals from DOE along the way. In return, of course, the Labs must operate with transparency, and be fully accountable for their actions and results.

This flexibility, in our view, should be expanded significantly in areas such as:

- The ability to manage budgets with fewer approval checkpoints,
- Managing personnel compensation and benefits,
- Entering into collaborations with private companies, including small businesses, without having each agreement individually approved and written into the lab's M&O contract with DOE,
- Building office buildings on sites that are not nuclear, not high hazard, and not classified,
- Conducting site assessments that are relied upon by DOE and others to minimize redundant assessments, and
- Sending key personnel to professional conferences to maintain DOE's work in leading edge science and for their professional development.

In the Congressional charge to us, we were asked to examine whether there is too much duplication among the National Labs. We looked into this in detail, and have included two recommendations in this area. The first regards the NNSA laboratories, where we conclude that it is important to the nation's nuclear security that the two design laboratories' capabilities continue to be maintained in separate and independent facilities.

The second recommendation in this area regards the way the Department manages through the life cycle of R&D topics. In our view, they do a good job at encouraging multiple lines of inquiry in the early, discovery stages of new subjects. And they are good at using expert panels and strategic reviews to manage mature programs. However, at the in-between stages, the Department needs to assert its strategic oversight role earlier and more forcefully to manage the laboratories as a system in order to achieve the most effective and efficient overall results.

Let us turn to some of our recommendations for how we believe Congress can help to improve the performance of the National Labs. We would like to cite four here in our opening statement:

- First, we conclude that Laboratory-Directed Research and Development, LDRD, is vitally important to the labs' ability to carry out their missions successfully, and we recommend that Congress restore the cap on LDRD funding to the functional level that it was historically, up until 2006.
- Second, to support strong collaborations between businesses and the National Labs, Congress may need to take action to clarify that the Labs have sufficient authority to enter into CRADAs and other forms of collaboration with domestic companies without DOE approval of each one.
- Third, we urge Congress to continue to recognize the importance of the role of the National Laboratories in building and operating user facilities for use by a wide range of researchers in universities, other Federal agencies, and the private sector.

- Fourth, there does seem to be a serious shortfall in funding for facilities and infrastructure at the National Labs. However, the scope and severity of that shortfall are not well defined. We recommend that the Congress work closely with DOE and OMB to agree, first, upon the size and nature of this problem, and then, upon a long-term plan to resolve it, through a combination of additional funding, policy changes, and innovative financing.

We would especially like to highlight our final recommendation. We found that in the past four decades there have been over 50 previous commissions, panels, and studies on the National Labs. It is our view that Congress and the Administration would be better served by some sort of standing body of experienced people who could provide perspective and advice on issues relating to the National Laboratories, without having to create new commissions or studies every time. Such a group could potentially be housed at the National Academies, or report to the President's Council of Advisors on Science and Technology (PCAST), or be somewhere else that would provide the independence that Congress requires.

Since releasing our report in late October, we have been very interested in what actions DOE is taking to follow up on our findings and recommendations. We are encouraged that Secretary Moniz and the current Lab Directors seem truly committed to reforming the relationship between DOE and the National Labs to restore trust and transparency.

In the past few days, the Secretary has sent to the Congress his response to our report. Overall, he is quite supportive of our recommendations, and he and his staff have provided a very thoughtful and detailed explanation of actions they have taken, and are taking, in every area of our report. These include, for example:

- Providing more information to Congress on the work and accomplishments of the National Labs, including beginning an annual Secretarial Report to Congress on the National Labs,
- Requiring all offices in the Department to adapt and use the major strategic planning processes of the Office of Science,
- Shifting the primary responsibility for decisions on conference attendance back to the Labs,
- Strengthening the project management processes for major capital projects,
- Strengthening the reliance of site offices and others on the Contractor Assurance Systems run at the Labs and assuring the CAS at all labs is of a consistently high quality, and
- Integrating the National Energy Technology Laboratory's (NETL) intramural and extramural research portfolio and adding flexibility in areas such as hiring and funding of laboratory-directed R&D.

The Secretary has also initiated some pilot projects to test out other potential changes, such as:

- Streamlined contracting between DOE and one of the Labs to clarify their roles and responsibilities in order to reduce much of the current micromanagement and approval requirements,
- Rotational assignments between headquarters and the Labs, and
- Flexibility and local authority for approval of business collaborations with the Labs.

We at the Commission are encouraged by these actions and intentions. However, there are areas in which the Secretary does not feel he has all the information he needs and is committing to reviews, workshops, and analyses. We hope those will lead to significant actions, but of course the jury is still out. In addition, the problems have developed over many years and will not be reversed quickly. We urge the Congress to support all of these efforts and to hold this Secretary and future Secretaries accountable for meaningful changes in all of the areas that we addressed.

We do want to add one final comment to the Congress. As noted earlier, we recommended the creation of an independent standing body which would provide oversight of the implementation of our recommendations and ongoing advice to Congress, as well as the Secretary. The Secretary's response indicates that he plans to utilize existing committees, including the Secretary of Energy Advisory Board (SEAB), rather than to create a new independent body. The Commission supports this for advice to the Secretary, but notes that no existing body can provide the independent advice to Congress which we envisioned.

On behalf of our nine commissioners, we want to thank you for this opportunity to serve the country on this important commission. We hope our work will be helpful and we are happy to answer questions and to discuss our findings and recommendations.

Mr. MURPHY. Thank you. I thank all the panelists, and I will begin by recognizing myself for 5 minutes of questions. First, for Mr. Augustine and Admiral Mies, the members of the advisory panel you chaired reflected a broad range of views and substantial experience with DOE, defense, and other nuclear matters; do I have that correct?

Mr. AUGUSTINE. Yes, sir.

Mr. MURPHY. OK. And the advisory panel made findings and recommendations that were unanimous; they were a unanimous vote?

Mr. AUGUSTINE. Yes, sir.

Mr. MURPHY. And Mr. Augustine, you say in your testimony that DOE governance and practices are inefficient, and in some instances ineffective which puts the entire nuclear enterprise at risk. Can these deficiencies be fixed and the benefits of DOE's technical and engineering abilities be fully leveraged by, sustained by leadership alone?

Mr. AUGUSTINE. I'm sorry. I didn't hear the last sentence.

Mr. MURPHY. Could the abilities be fully leveraged and sustained by leadership alone?

Mr. AUGUSTINE. I would say not. Leadership is of course absolutely essential. There are also organizational issues that have a bearing, and there are many government practices, government-wide practices that I think contribute to the problems that have been encountered in NNSA. As an example, one of the main failings, in my view, has been the lack of accountability. When I was involved in the Y-12 investigation, the people, the company that was in charge of the issues at the time was fired. The senior management was fired. I haven't to this day been able to find out what happened to the people in the government. They sort of just moved from one job to another. That's partly because of the civil service rules that were set up with very good reasons, but there are constraints that make it very difficult to impose accountability to the government.

I spent 10 years working in the government, most of my career in industry, some in academia, and it is very hard to provide the leadership in government. Having said that I think that leadership is absolutely critical, but there are a lot of other things that need relief. The lack of a capital budget is one that comes to mind immediately.

Mr. MURPHY. Is the key then as you are saying, and Admiral Mies, I would like a comment on this too that could you comment about what needs to be done with leadership; as soon as this gets fixed here. We can put a man on the moon; we can't make a microphone work in a congressional hearing room. Sorry. I am going to do my best.

So Admiral Mies, your panel's unanimous finding is that NNSA's current governance structure failed to accomplish what Congress intended, so you recommended essentially reintegrating NNSA more fully back to the DOE umbrella. So looking at what needs to be done structurally and leadership, Congress can't necessarily mandate that someone be a good leader, but we can identify a number of things as mentioned as accountability in there. So, but in what you are saying, what are the benefits of doing this?

Admiral MIES. What are the benefits of doing this?

Mr. MURPHY. Yes, if we—

Admiral MIES. Well, I think the benefits to a certain degree should be obvious to all of us based on the 50 previous reports and their findings and recommendations.

I would just comment first of all that the national security enterprise to begin with is much, much larger than just NNSA and it encompasses both, Congress, the executive branch, White House, elements of DoD and the broader DOE, not just NNSA. And so again, building a structure that promotes greater collaboration and coordination across the enterprise is really critical. As Norm indicated, leadership, first of all, is probably the most important element.

But as we indicated in our report, most of the problems are cultural not organizational, and simply changing the wiring diagram and changing the NNSA Act alone is not going to deal with the fundamental problems of a very risk-averse and entrenched bureaucracy. And so there are a lot of cultural issues that I think need to be addressed that can improve the technical competency, the collaboration, the relationship between the M&Os and the federal workforce in a much more collaborative way than presently exists. So again I think it's addressing those cultural changes.

To build on Dr. Cohon's testimony, I would tell you that as a sign of the secretary's commitment to institutionalizing some of the reforms he's asked both Dick Meserve and I to co-chair a subpanel of the Secretary of Energy's Advisory Board to oversee not just our report, but all of the previous past reports' findings and recommendations on how the Department is responding to them.

Mr. MURPHY. Thank you. I will let Ms. DeGette go next because I only have a few seconds left, but I will come back to that later. Ms. DeGette, 5 minutes.

Ms. DEGETTE. Thank you, Mr. Chairman. One of the major conclusions of the Mies-Augustine report is that the current NNSA governance model has failed to provide the effective mission focused enterprise that Congress intended. I would like to walk through some of those key findings with you, gentlemen, so I can understand how this affects NNSA's ability to accomplish its mission. Now I only have 5 minutes so I am going to appreciate yes or no answers.

Mr. Augustine, your interim report states "one unmistakable conclusion of the panel's fact finding is that as implemented the NNSA experiment in governance has failed." Is that correct?

Mr. AUGUSTINE. Correct.

Ms. DEGETTE. And in fact, your report concluded that the NNSA Act, which intended to create a separately organized NNSA within DOE, did not achieve the intended degree of clarity in enterprise roles and mission ownership; is that correct?

Mr. AUGUSTINE. Yes. I believe that's true.

Ms. DEGETTE. And in fact, the creation of the NNSA has caused a number of structural issues between it, the DOE and the weapons labs; is that correct?

Mr. AUGUSTINE. I believe that's true.

Ms. DEGETTE. For example, your report found that there is still an overlapping of staffs between the NNSA and the DOE. This can lead to problems with oversight, blurred ownership, and account-

ability when it comes to managing the nuclear enterprise. Is that correct, Mr. Augustine?

Mr. AUGUSTINE. Yes. That is our view.

Ms. DEGETTE. Now I could go on here, but your report concludes, "significant and wide ranging reform is needed to create a nuclear enterprise capable of meeting the nation's needs." That is one of the key findings in your report, isn't it, Mr. Augustine?

Mr. AUGUSTINE. Yes, indeed.

Ms. DEGETTE. So, let us talk about how to begin fixing those problems. The panel recommends that the nuclear enterprise would be most effective in performing its mission if led by an engaged cabinet secretary with ownership of the mission Department wide; is that correct?

Mr. AUGUSTINE. Absolutely.

Ms. DEGETTE. Now in other words, Mr. Augustine, the current relationship among NNSA, the Secretary of Energy, and DOE headquarters is not meeting the mission of the nuclear energy enterprise, therefore we should bring NNSA back into DOE under the secretary; isn't that correct?

Mr. AUGUSTINE. That is our belief.

Ms. DEGETTE. So, Mr. Augustine, in your testimony you talk about the President's nuclear negotiations with Iran to underscore the importance of having a qualified DOE cabinet secretary be in control of the nuclear enterprise. And we clearly saw this, I think you mentioned this, under Secretary Moniz.

Tell us why having the NNSA led directly by a full cabinet secretary is so important for the country's nuclear mission and for our national security.

Mr. AUGUSTINE. Very briefly, the nuclear mission is one of the most important missions that our country engages in. Given that it should be represented at the highest levels of our government if it's to be impactful. Two, if the enterprise is spun off as an independent, self-standing entity, it's our belief that we'll have neither the authority, the presence nor the ability to attract and keep top level people. It needs a seat at the cabinet table, and it also needs to draw upon the other labs in the DOE.

So we looked at four different options. We believe the one we've described is clearly the best. That's our unanimous findings.

Ms. DEGETTE. So thank you. Admiral Mies, something that you have said now twice in your testimony today really struck me. What you said is that you can't just fix this by fixing the structure. You have to fix the culture, correct?

Admiral MIES. Yes.

Ms. DEGETTE. Now, so here—

Admiral MIES. I mean—

Ms. DEGETTE. OK, hang on a minute. Here is the thing though. If you have overlapping ownership, if you have overlapping and unclear accountability, if you have a lack of clear leadership from the top from a cabinet secretary who knows what he or she is talking about, then that only helps feed the culture, isn't that right? So I would say fixing the structure will begin to help fixing the underlying culture.

Admiral MIES. Certainly they go together, but I think ultimately the ownership, the leadership-ownership of the mission and also

the cultural changes that are necessary not just within NNSA but DOE wide—

Ms. DEGETTE. Right.

Admiral MIES [continuing]. Are critical to the successful more effective implementation of the mission.

Ms. DEGETTE. I totally agree with you. Thank you. I thank all of you. And I didn't get a time to talk about to you other gentlemen, but maybe we will talk about you later. I really think that this is important that the panel follow through on both of your panels' recommendations. Thank you.

Mr. MURPHY. The gentlelady's time has expired. I now recognize Mr. Cramer from North Dakota for 5 minutes.

Mr. CRAMER. Thank you, Mr. Chairman. Thanks to the panel for your expertise and for being with us and for the very hard and good work that has been done. It is hard to get to one or two points.

I might just say as a point of reference, my interest besides oversight and just concern for the entire situation is of course that North Dakota hosts two-thirds of the nuclear triad but we do have submarine named after us, so at least we would like to take all three. But I want to get a sense of the urgency of all of this, because obviously there is a lot of work that has gone into this. It is very comprehensive; a lot of good recommendations. The leadership stuff, I think we could spend a lot of time just talking about the leadership issues, but we all view it through the lens of a particular person or a particular administration, and you are dealing with structure that hopefully enhances culture.

Tell us about the urgency. What if these recommendations or some of these proposals aren't enacted? What would be the most important ones and in what order that we would have to get to like tomorrow if we could? Could somebody sort of give us a sense of the urgency of each or all of these recommendations? And whoever wants to take it first can go for it.

Mr. GLAUTHIER. Sure. I'll be happy to since I haven't had the opportunity to speak earlier. I think that the culture change that Admiral Mies talked about underlies all of the things that we're dealing with and if we don't get this relationship right, we run the risk of the life extension programs, for example, for nuclear weapons getting off track. There's been a significant amount of progress in the last year getting them back on schedule, but that depends upon some individuals. And it really has been a difficult project to manage those things.

Our recommendations are that we need to return the whole system to the FFRDC model, and that is the relationship of the laboratories and the M&O contractors to the government needs to be the one that Jared Cohon described in the testimony, whereas the government is specifying what it is that needs to be done, what the mission needs to accomplish, and then give the laboratories more flexibility, more freedom to carry it out, but being transparent and accountable.

And we don't have that relationship right now, and as a result it risks not being effective. Too many people are in charge and therefore nobody's in charge. And it also is less efficient and we're

spending more money than we would need to do if we get this right.

Mr. CRAMER. Others? That was very well said, although I could apply it to several agencies and divisions of agencies, but critically here. So on my urgency point then this is the start. This would be the start that perhaps could lead to all kinds of other benefits obviously.

I want to get to the oversight issue a little bit too then, and I appreciate Ms. DeGette's point of the oversight, because some of what you are talking about is certainly on the advisory side. I appreciated the emphasis on existing advisors, OK, but maybe not in this sense, we need independence.

What I worry about, and I think what a lot of Members of Congress worry about, is that advisory committees, advisory councils, commissions within agencies tend to adopt the bureaucracy rather quickly. And as Members, the independence is a really big deal because we don't want to be overly duplicative, then that sounds overly duplicative. We don't want to have duplication, but at the same time this independence thing is a really big deal, I think, and it gives us a sense of comfort if we know that they are advising us with the same clarity and expertise and honesty as they would be advising the secretary or anybody else. And I don't assume that anymore. I think that is just maybe human nature, but yes, sir?

Mr. COHON. If I could speak to that?

Mr. CRAMER. Please.

Mr. COHON. I'm very glad you raised it and that Ranking Member DeGette raised it. I think it's a critical issue. As you've heard several times and as you know well, there have been more than 50 studies of the energy laboratories in the last 40 years. Furthermore, as we learned in our review of those studies, each subsequent commission or committee made basically the same recommendations because the last ones hadn't been implemented.

One thing we can predict almost with certainty is if you don't do something else you'll create another commission pretty soon and the same thing will happen, so this is exactly why we proposed what we did. Now we don't have an answer as to how one should situate such a commission or where you put it. National Academies was one institution that we identified as a potential home for it. It's hard to figure out, but I'm very glad you raised it and stressed what you did. Independence is the key, and I think Congress and the nation need it.

Admiral MIES. I would like to make one comment about the independence. I think, I have recently been asked to join the Secretary of Energy's Advisory Board, and I can assure you under the leadership of people like John Deutch it has not adopted any of the bureaucratic culture within the Department. It is clearly independent. Its members represent a diverse population of expertise much like our Commission. So I think you should have at least confidence that the secretary has an advisory board who really is giving him independent advice.

I would also give you an analogy as a submarine commander. On a submarine I had three major departments: an engineering department, a weapons department, and a navigation department—

and I don't think I could have successfully run a submarine if one of those departments was semi-autonomous.

And I think again one of the cultural issues is the lack of codified roles, responsibilities, authority, and accountability within a department, and putting the responsibility squarely under the ownership and accountability of the secretary, to me, like the captain of a submarine, makes eminent sense.

Mr. MURPHY. Thank you. Now I will recognize Mr. Tonko for 5 minutes.

Mr. TONKO. Thank you, Mr. Chair. Welcome, gentlemen. A key finding of the nuclear security panel is that the intent of the NNSA Act to create a separately organized NNSA within DOE has not worked as originally intended. This has led to a number of structural problems within the nuclear enterprise. For example, the act as implemented has "made organizational changes designed to insulate NNSA from DOE headquarters without specifying the secretary's roles, without stipulating the relationships between NNSA and DOE headquarters staffs, and without requiring actions to shift the Department's culture toward a focus on mission performance."

And so, Co-chair Augustine, to fix some of these structural problems the panel concluded the NNSA should be brought back under the Secretary of Energy and led by a knowledgeable and engaged cabinet secretary. The panel also explored a range of other options such as making the NNSA a separate independent agency, but the panel concluded that each of the other approaches had their own significant weaknesses.

So my question is, can you briefly explain what other alternatives the panel explored and what were their weaknesses?

Mr. AUGUSTINE. I certainly can. There were four options, basically; none are perfect, unfortunately. One option is to create a totally independent NNSA as an agency like a NASA, for example. Another option is to leave things as they are, which I need say no more about the feelings of that. Another option is to put NNSA within the Department of Defense. And our view there is the Department of Defense has so many things on its platter today, furthermore, much of what NNSA does ties in with the rest of DOE. We discarded that option.

And so you come back to the one of why not make it a real part of DOE? Today it's sort of half on half pair. It needs to be either, the best option we can see is to make it part of DOE. Put DOE in charge. Put a leader in there that understands nuclear matters and give them the authority to run NNSA. The second best option would be, in our view, to make it an independent agency, but we view that as a very inferior second best option.

Mr. TONKO. Thank you. And again to our co-chair, co-Chair Augustine, what do you mean by further isolating the nuclear enterprise? In your statement you talked about that further isolation. What happens if the nuclear enterprise, and mainly we mean NNSA and the weapons labs, are isolated from DOE or a cabinet secretary?

Mr. AUGUSTINE. I think with regard to the latter, the isolation from a cabinet secretary is that they don't have a seat at the highest levels of the government, and we think their mission is so im-

portant that they should have that seat. The other problem with the isolation is it requires one to create a whole new level of bureaucracy if you will that already exists, or a support structure that already exists within the DOE and that the NNSA shares much of what the other DOE labs do, the four NNSA labs, the other 13 labs. And so it seems to us there's a very natural tie.

And I think Admiral Mies and I would be very careful to say that this is not perfect. It's complex, but it's by far the best option we can think of.

Mr. TONKO. Thank you, and Admiral Mies.

Mr. TONKO. NNSA is in charge of the development and testing of this nation's nuclear defense capability. It is critical that we understand the important role NNSA plays in keeping our nation secure and therefore understand the recommendations that your panel made in its final report.

So what is at stake if we do not adequately address the ongoing structural problems between DOE and NNSA that you have uncovered?

Admiral MIES. Well, I think, within DOE, because you have a semi-autonomous organization, separately organized NNSA, it's neither fish nor fowl. It's not autonomous enough to have complete autonomy to determine its own direction, but it's just autonomous enough to upset a lot of the people in DOE outside of NNSA who support the secretary.

And as Norm and I indicated, in the Department of Energy NNSA controls 43 percent of the Department of Energy's budget. What secretary or secretary's immediate staff wants to allow that to be autonomous and not under the secretary's direct control, particularly when it involves such a critical element of national security? And particularly when the secretary has to personally certify every year to the President the safety, security and performance of our strategic stockpile? So again, I think there's a structural issue.

But I would argue to, and this is my point about culture, that professional, well qualified, technically competent people can overcome organizational deficiencies, but no amount of reorganization can compensate for an entrenched, risk-averse bureaucracy with a lack of technical competence and a lack of professionalism. And so the cultural changes to me are critical, because if you have an organization of well qualified, professionally competent people they can overcome some of the organizational inefficiencies that exist, and I think that's true of every organization.

Mr. TONKO. Thank you for your insights, and with that I yield back, Mr. Chair.

Mr. MURPHY. Thank you. I now recognize Mr. Griffith of Virginia for five minutes.

Mr. GRIFFITH. Thank you, Mr. Chairman. I appreciate this. This is an important hearing, and I apologize to all of you. I have been in another important hearing and have just arrived, so forgive me if I tread on some territory, although I think I am in an area that will be a little different than what you have been asked before.

I am going to ask all of you, if you will tell me briefly the answer when I get there, much of the focus on DOE's national security programs is directed toward the work undertaken at the three labs

overseen by the NNSA. However, a number of other labs also support vital national security activities.

Does the Department recognize the role of the non-NNSA labs in supporting the national security mission and are those labs incorporated into the process? In other words, are they in the loop for some of the things where they may have an expertise that the three NNSA labs do not have as much expertise or where they have overlapping expertise? Whoever wants to answer it.

Mr. GLAUTHIER. All right. OK, sure. Yes, there is a real strong effort to make sure that those labs are involved in the joint assessments of the mission needs and the like. A couple of the examples would be Oak Ridge in Tennessee and the Pacific Northwest Lab up in Washington State, both very actively involved in the nuclear weapons programs and all, and the national security nonproliferation programs too. There's a lot of that sort of integration and that's one of the things that Norm Augustine just mentioned we would lose if you moved the NNSA laboratories out, but those other labs are still in the Department of Energy.

Mr. GRIFFITH. Yes, I do appreciate that. And it is part of why I asked the question, because while as the crow flies I may be a good distance away from Oak Ridge, my district is in the Tennessee Valley Authority region so we want to make sure we take care of that.

In your opinion—I will just continue if I might, and feel free to jump in if you have something to add. But in your opinion, do you believe the labs work together effectively to support the DOE mission overall? Are you aware that the labs are working cooperatively to present joint mission research to Congress? What else do you believe that the labs should be doing to support the DOE mission?

Mr. GLAUTHIER. This is an area that we did spend a good deal of time looking at. We think that the labs are very actively involved in supporting the mission or the missions of the Department. But we also are concerned that there are times that the laboratories do not share as much information with each other and with the Department of Energy as they should, and that in early stages of new technology or new issues in exploration you want a lot of new ideas explored, you want a lot of people to do a lot of things independently, but as that matures and becomes a program area or an area of more importance, the Department needs to step in and assert more leadership in terms of where we're going to conduct that research, what are the degrees of coordination that you want among the laboratories and all, and right now the Department has let that go on too long. There are some activities that this secretary has begun to try to integrate that more and he's got some cross-cut activities he talks about as making some progress, but that's an area that we call out for increased attention of the Department and the Department needs to step up to its responsibilities in those areas.

Mr. GRIFFITH. Well, I appreciate that. The labs have been described as the nation's crown jewel in reference to basic and applied science work they do. Do you believe, and it sounds like you do, but do you believe the national labs have a unique role and their work is not duplicated elsewhere? I am talking about all the labs, not just the three.

Mr. GLAUTHIER. Yes, we certainly do, and have come to that conclusion and think that it's important as you look at all those missions, which the national defense mission, the nuclear's, the role is an important one, but also the whole role in innovation for the country and the role in working with the private sector and with the universities and the basic research support. These are all very important and they are ones that we do not feel are duplicated, but rather they complement the other agencies and other roles of the government.

Mr. GRIFFITH. Now I have got about 50 seconds left and I have a long question here, so I am going to skip the question and just say, what else do you think can be done to bring about that process where the labs are working together and what should the DOE be doing to facilitate that?

Mr. GLAUTHIER. Well, I'll go ahead, and since I've got the microphone here. I think it's the relationship of the openness and working in partnership that is really key. And that's a partnership not just with the Department of Energy and the labs, but among the labs as well, and that actually is better now than it has been for years. I think that again this secretary deserves some credit for this, and this set of laboratory directors do too. So continuing to support the Laboratory Directors' Council, supporting their work together as a group is very important.

Mr. GRIFFITH. Well, I appreciate that. If I could take just a minute, Mr. Chairman, I used to be a small town lawyer. And it sounds like what you are saying is, is that you ought to do something maybe by Skype or by the Internet. But we had a group, most of the lawyers in town were in one-, two-person law firms, and I think the big one was three, and every Wednesday when I was practicing and to this day, the lawyers that were available would congregate at the local watering hole, Mac and Bob's on Main Street, and share ideas and best practices and what was working and what the judges were looking at and that kind of thing.

Sounds like that is what you want to do for the labs, is give them an opportunity to say what is working best and where we are going so that we can make this process more efficient.

Mr. GLAUTHIER. Yes. And they are learning a lot from each other and actually improving the whole system. Did you want to add something?

Mr. COHON. I just wanted to add something to what TJ said, which goes to your last question but ties back to your very first one. That is, one of the things that we recommended, our commission recommended, was that each of the lab create an annual report, yet another report, but this one focused on a very high level attempt to integrate all that the lab does.

The big multipurpose labs, Oak Ridge is a great example, gets their support from many different offices within DOE, and there's not been enough effort to try to understand the whole of what Oak Ridge does. That would be a very valuable thing to do for the laboratory and for DOE.

So it goes back to your point about whether we recognize all that the non-weapons labs do for the weapons program, yes, but going from the other direction I'm not sure we always recognize all that

the individual labs do, taking it in totality especially the big multi-purpose ones.

Mr. GRIFFITH. Thank you very much, I do appreciate it. Mr. Chairman, with that I appreciate your indulgence and yield back.

Mr. MURPHY. The gentlemen yields back. I now recognize Ms. Schakowsky of Illinois for 5 minutes.

Mr. SCHAKOWSKY. Thank you, Mr. Chairman. Like Representative Griffith, I want to apologize, such a prestigious panel. I too was at another hearing, this time with the Secretary of HHS, and so I apologize for missing not only your testimony but some of the questioning that has been done. So I am hoping—you know how it goes, sometimes everything has been asked but not everybody has asked it; I may be in that situation.

But I did want to talk about some of the accidents that have happened and what we may have learned. The major consequences, there have been major consequences because of the WIPP accident and we understand from the Department of Energy that limited operations might resume in December, had to be shut down. But it could cost over half a billion dollars to fully remediate this site. So, Mr. Augustine, first of all, let me ask what are the lessons that we have learned from the WIPP accident and how do they relate to your report's finding and recommendations?

Mr. AUGUSTINE. I think the lessons I've learned from each of these incidents are very similar. The first is that someone has to be in charge that's qualified to be in charge. That person has to have the authority to cause what needs to be done to be done. They have to have accountability which they can pass down through the system.

One of the greatest feelings in government in my view, and as I said, I think before you came in, I spent 10 years in government and I'm very proud of that but accountability is very hard to find in our government. So I think it was TJ who said that everyone tends to be responsible for everything and no one tends to be responsible for anything.

And we often try to solve the problem with organizational change, and that's needed in this case in our view, but that won't begin to solve the problem. This would be a problem that's relatively easy to solve in the corporate world; it's very hard to solve in the government. But basically what's needed is qualified people, people to talk with leadership—

Mr. SCHAKOWSKY. What would be done in the private sector?

Mr. AUGUSTINE. Well, the private sector, when you're trying to bring about change and I've lived through a lot of that you have basically three kinds of people, one who are excited about change and view it as an opportunity, others who can go along with it, and those who will fight it. You fire the ones who are going to fight it. It's as simple as that. You can't make change with people that are going to fight it. And you can't do that. I spent 4 years, 5 years to get rid of one person in the government and finally succeeded, and there was plenty of reason. And there's just not the accountability in government. It's built in.

Mr. SCHAKOWSKY. I wondered if anyone else wanted to answer that. Yes, go ahead.

Mr. GLAUTHIER. I think the Y-12 incident may be an interesting example.

Mr. SCHAKOWSKY. I was going to raise that one as well, yes.

Mr. GLAUTHIER. OK. I think it goes to what is the responsibility that you're giving to a contractor or a laboratory. And if the responsibility is to keep the facility, be secure and safe, then they should take that and look at all of the aspects of what it does, what they're required to accomplish that. Instead, if we tell them their responsibility is to follow a set of checklists and to be able to do all these things and to be sure that they have their inspections that check off all the boxes every time somebody comes around, then we're missing the real focus of that.

And I think that is one of the problems that we have in the Department of Energy that there is a lot of attention to specific directives and rules and approvals and not enough focus on what the real objective is in these programs. And you should be giving the people at the laboratories the responsibility and accountability for actually carrying out the specific actions and roles.

Mr. SCHAKOWSKY. Right.

Admiral MIES. I would like to add to that. One of the observations in our report is that most of the contracts, particularly the NNSA contracts, involve a significant amount of the fee being award fee not fixed fee. And because of the award nature, there is a whole body of federal oversight people who are responsible for kind of grading how the M&O contractor is performing to earn that award fee. And frankly that process has become very wasteful and ineffective in terms of the things that the people are overseeing. It involves more with contract compliance rather than with mission executions, successful mission executions.

So if you look at Y-12 as just one example, in the run-up to Y-12 for a long period of time there were 600 or more alarms per day—false alarms, or nuisance alarms in the command center. And over a long period of time that built a culture of complacency with the security force such that when an alarm occurred the people did not respond like you would like to have them respond.

And as a result of that it's no surprise, essentially, when you have a real security incident with a nun and two elderly assistants that the response is not what you would have liked. I would argue that on the contractor side you had a problem in that you had two separate contracts, a contract for security and a contract for the M&O contractor, and so there was a bureaucratic seam there which didn't necessarily have accountability centered in a single organization. And you can criticize that.

But more to the point, how could all of those federal overseers not have gone into the command center and noticed the frequency of alarms over a long period of time and reported that and taken some degree of action to encourage the M&O contractor and the security contractor to address those issues? There is a very ineffective and wasteful transactional oversight system that has evolved, and one of our recommendations is do away with award fees, go to fixed fees that really are commensurate with the M&O contractors' responsibilities and the risk and financial risks they take, reputational and financial, but hold the M&Os accountable.

Mr. SCHAKOWSKY. Well, I just want to thank you. My time has long expired, but thank you for the good work that you have done and the reports that you have issued. I appreciate it and the recommendations.

Mr. MURPHY. OK. The gentlelady's time has expired. Each of us is going to ask a couple more questions. I don't know if any of the members do, but I know that Ms. DeGette and I do. So let me ask this, first, Dr. Cohon.

As former president of Carnegie Mellon, you understand how to ensure an effective organization and you did a great job there. But the report before us talks about alignment of responsibilities and accountability. A success here would seem to involve this structural reporting component and this leadership component which we spent a lot of time talking about; am I correct on that?

Mr. COHON. [Non-verbal response.]

Mr. MURPHY. So, can you have one without the other and still have a fully effective laboratory? I mean, obviously we want to set up, make sure there is a system that has the flexibility, rewards innovation, gets people to speak up as opposed to just saying I am not going to say anything. We have had so many hearings here. General Motors, devastating consequences of just people not even speaking up when they saw something going wrong and they refer to as a "Gentle Motors shrug."

We had hearings about Volkswagen where somebody changed something in some piece of software and the next thing you know, one day they couldn't meet the standards for diesel engines and the next day they could. And I think it was Mr. Collins of New York who pointed out, did he at least get a patent? I wondered, did he get employee of the month? Did anybody give him a free parking space for that? No one seemed to know in the organization.

So you have to have this leadership and accountability. So how critical is this lab leadership for ensuring this increased focus and performance of the laboratory research and development in particular?

Mr. COHON. I think it's a wonderful question, Mr. Chairman. I'm glad you're focused on that because I think it's key. It goes to this issue of culture that Admiral Mies talked about and the relationship question between DOE and its laboratories.

To answer you I want to pick up on something that TJ Gauthier was saying before in response to the question about the incidences that have occurred. I think he said something very important, and let me put it in a different way.

We visited all 17 labs, and one of the really interesting thing was to me, but it shouldn't be a surprise, is how proud people are to work at these laboratories. They have a real sense of mission. They have a real sense that they're contributing to the advancement and safety of this nation. They're extremely proud of that. That's what we're buying, by the way, by having this relationship that we've created for 16 of the labs where it's privately run, but government owned. We're buying into that unique culture that each laboratory is able to create. That's key, I think, to success. And certainly leadership is part of that. You have to have leaders who understand that and know how to promote it and to sustain it.

But just to underscore what TJ was saying, you're much less likely, I think, to have someone put the wrong thing in a barrel on its way to WIPP if they are invested in their mission and they understand what they're doing as opposed to relying on a check sheet with someone trying to do it completely by compliance. So what you put your finger on, I think, is key to the success of the labs in every way, both in terms of their mission and being compliant.

Mr. MURPHY. I want to talk about one specific lab, the National Energy Technology Lab is the one in my district. I understand Secretary Moniz issued his reply to your recommendation to study whether NETL should be converted to a government owned contractor operated laboratory, he said so this week. And the secretary basically said there can be ways to improve management and performance within the current model and we will pursue that. Now do you agree that NETL performance may be enhanced by some of the tools provided to similar defense labs?

Mr. COHON. I do. I admire the secretary's response. I think it's correct, and I especially appreciate the fact that he understood what motivated our Commission. We care less about the specifics of how the National Energy Technology Laboratory is organized, what we care about it is the increased focus on R&D and making it more visible and giving the lab more flexibility. And in both regards I think the secretary's response is very good.

Mr. MURPHY. I want to say for the record, multiple times I have visited the National Energy Technology Labs near Pittsburgh, and I do agree with you. Highly motivated people proud of their work and oftentimes wondering, we are doing great work here, why isn't anybody paying attention to it? How do we get this to go up the chain of command, because that itself is a stovepipe. Or when I see what they have done that deals with methane released on unattended wells; when they say we have advanced a lot with coal technology, carbon sequestration, we can do this; when I hear about just a wide range of other things going on there it is pretty amazing to me.

I know one of our issues—and we will review this. I have been talking to my colleague Ms. DeGette about some of the recommendations, legislative recommendations, and we will review that carefully. But it still comes down to this point we have realized over the years, we cannot legislate character and we cannot mandate morality and we sure as heck can't litigate common sense, but that requires a certain type of leadership.

But the accountability, generally what happens in a federal office is about the only person that has accountability for whether they stay or not is the leader, so many other people are there and there is some things we have to make sure we deal with. So I thank you. Ms. DeGette for 5 minutes.

Ms. DEGETTE. Thank you. Well, I don't have so much questions as an observation, which is this agency, the NNSA, was formed in large part because of the issues that these two commissions have identified. I have here, I was sharing this with the chairman, some minutes of one of the many hearings we had. This hearing was almost exactly 16 years ago. It was March 14th, 2000.

And at that time the chairman, it was the chairman of the Energy Committee of Energy and Commerce said, the history of poor

security and safety practices at these sites, however long it may be, is still recent enough to caution us again letting the NNSA become a self-regulating entity. This was 2 weeks after it was passed. And that of course was Fred Upton, now the chair of the full committee here.

Then, the chair of this subcommittee, Oversight and Investigations, said even before the NNSA passed, a number of concerns were expressed by both Congress and the Administration. For example, and then it goes on and on, then, to talk about we have heard both Senator Rudman and the GAO refer to a culture in—does this sound familiar, Admiral? A culture in DOE which seems to espouse a bureaucratic form of elitism and resistant to substantive change. That was Cliff Stearns, who was the chairman several chairmen ago of this committee.

Now everybody on the Energy and Commerce Committee realized the set of problems that we had at these labs before the NNSA was passed. We realized the culture, we realized the problems, but what happened was in response to the Wen Ho Lee case and some other really high profile cases coming out of Los Alamos and WIPP and other places, Senator Rudman and others thought, well, this will be super great to have a semi-autonomous agency. The members of—and what happened was this agency was established in the dead of night. No good ever happens as near as I can tell when you go over to the other body and then you establish something in the dead of night in a conference committee. But that is exactly how this agency was established.

And members of the Energy and Commerce Committee realized at that time, sadly, it would be like a comedy, one of those congressional comedies, if it didn't deal with our nation's nuclear security. And here we are 16 years later identifying the same culture problems, identifying the same organizational issues.

And so I think we are just kind of lucky that nothing has happened. We did have the nun and the other people. We have had some other breaches, but something really, really serious could happen. And it is time that we really work in partnership with all of you and your committees to make this happen.

The proposed legislation that you put as an appendix to your report that is a good start. And I really have talked to the chairman and his staff about undertaking a serious effort because it is my opinion, I think we all are saying the same thing, is when you have a culture that is an embedded culture in these agencies, you have to have strong leadership to change that culture. And so that is what we are all saying. That is what we don't have, and we look forward—I hope you are not sick of us yet, because we intend to make this a continuing relationship. And I yield back, Mr. Chairman.

Mr. MURPHY. Thank you. Mr. Griffith, do you have any final questions?

Mr. GRIFFITH. I do not. Thank you.

Mr. MURPHY. Thank you. If I could sum up what they just said, I put up two of my favorite cartoons here. This is based upon the quote by George Santayana that those who cannot remember the past are doomed to repeat it. One is an elderly man sitting next to and talking to a young man in a library and he says, those who

don't study history are doomed to repeat it, yet those who do study history are doomed to stand by helplessly while everybody else repeats it.

Or imagine two high school students walking out of school one day and one student holding his report card says, I failed history again. I guess those who don't learn from history are doomed to repeat it. Another one there too.

We certainly don't want that because as was asked by some of the folks before and it says so clear in your co-chair reports, this can create a dangerous situation. And although we may look at it with some—note it to the history also becomes farce if we don't learn from it, these can be tragic consequences and we have to do that.

I really thank you all for the effort you have put into this. This is very valuable and we will continue to talk about what we do with this and have more briefings and hearings on this. I do want to ask the unanimous consent that the documents of this binder, which is for the committee, be introduced into the record and to authorize staff to make any appropriate redactions. So without objections, the documents will be entered into the record with any redactions the staff determines are appropriate.

So, in conclusion, thank you all again this very distinguished panel, and I want to thank the witnesses and members that participated in today's hearing. I remind members they have ten business days to submit questions for the record and ask that the witnesses all agree to respond promptly to the questions.

So with that this subcommittee of the Energy and Commerce, Subcommittee on Oversight and Investigations, is adjourned.

[Whereupon, at 1:03 p.m., the subcommittee was adjourned.]

[Material submitted for inclusion in the record follows:]

PREPARED STATEMENT OF HON. FRED UPTON

Today we consider the recommendations of two distinguished panels that examined the Department of Energy's most important functions—maintaining the strength of our nuclear security enterprise and the national laboratory system that underpins the scientific and technological work that supports nuclear security and other DOE missions.

The work of the department is vital to the nation. The testimony plainly explains the stakes if DOE loses its edge on the nuclear deterrent, on nuclear security and its naval programs, on its technological superiority. So as we look at DOE's structure and decision-making for confronting the challenges of the 21st century, we have to focus on these fundamental operations to be sure they are working at maximum potential. I want to commend the panelists for their work in outlining what should be done to meet this goal.

The story of DOE's management and performance shortcomings, particularly when it comes to its nuclear work, is long and unpleasant. During my time as Oversight Subcommittee Chairman over 15 years ago we took a hard look at agency failures in security and project management, pressuring the agency to reform. Some reforms have worked and some clearly have not taken hold. In recent years, as demonstrated by our oversight of security failures at nuclear weapons production sites, safety failures at the national laboratories, and contractor oversight failures overall, the reforms of 2000 did not achieve the results Congress envisioned.

Under my chairmanship, under previous chairmanships, the goal of Energy and Commerce has been to ensure the accountability to the president, through the Secretary of Energy, for the safety, security, management, and ultimate performance of DOE's nuclear weapons and nuclear security enterprise. This accountability has been put to the test, particularly in the wake of the creation of the semi-autonomous National Nuclear Security Administration.

The panelists today make a very important point: Cabinet-level leadership, by the Secretary of Energy, is essential for the success of DOE, particularly its nuclear security mission. We'll discuss a key recommendation to strengthen the secretary's ownership of this mission today, which will require continued administration and congressional focus on making sure future secretaries are well prepared for their nuclear security responsibilities. Solidifying secretary's ownership of his nuclear security responsibility also includes reforms to the governance structure of NNSA. The goal is to allow for the best of NNSA's focused mission and to discard the duplicative, inefficient structures and offices that inhibit operations and restrict the ability to benefit from all the technological, operational, management experience of the full department.

This is a worthy goal that we must collectively work toward. The big lesson is that DOE's safety, security, and contract management problems span administrations, span Congresses. From my experience, and as our witnesses will explain, improving DOE's performance requires long, sustained attention to ensure sustained improvement in agency performance. DOE has huge responsibilities that will not go away. This committee's job will be to ensure the department is managed to meet these responsibilities, and structured to ensure they are executed to their full potential and in the best interest of the American taxpayer. This hearing continues this important work.

PREPARED STATEMENT OF HON. FRANK PALLONE, JR.

Thank you for holding this important hearing on one of the nation's most vital national security programs.

The work of the National Nuclear Security Administration (NNSA) and the DOE laboratories is critical to keeping this nation and our allies safe.

DOE's work maintaining the nation's nuclear deterrent and advancing science in a variety of energy and security fields has also been a cornerstone of the Energy and Commerce Committee's oversight efforts. For example, we have held numerous hearings on a wide variety of challenges facing the national labs and examined various solutions to some of the problems we have uncovered.

Continuing that work, we have the heads of two distinguished panels that have completed very thorough reviews of the nuclear security enterprise and of DOE's national laboratories more generally. The reports produced by these panels underscore that the weapons complex and national labs have achieved a great deal in both national security and science endeavors.

However, ongoing achievements in these areas is neither inevitable nor guaranteed. Both panels highlight a variety of structural and cultural challenges facing NNSA and the labs. In particular, the Panel on the Governance of the Nuclear Security Enterprise concludes that the current arrangement between DOE and a "separately organized" NNSA has failed to provide the effective, mission-focused capability that Congress envisioned.

The panel, for example, concludes that overlapping staffs and the lack of clear lines of authority and responsibility have created confusion and tensions among headquarters, field sites, and contractors, as well as a host of other issues involving management and organizational culture.

As a result, the panel has concluded that NNSA is in need of major reform.

Members of this Committee are no strangers to the accidents, missed deadlines, and massive cost overruns that have plagued NNSA and the nuclear weapons labs over the years. Just this past June, we held a hearing on the radiological release that closed the Waste Isolation Pilot Plant (WIPP) in New Mexico. This facility likely will be reopened, but not before taxpayers will pay more than half a billion dollars or more in cleanup and restoration costs.

If we fail to address the governance and management issues at NNSA, we risk continued accidents and spiraling costs, which ultimately will be borne by the taxpayer. More importantly, given NNSA's mission, failure to address the problems at the agency can ultimately affect our national security. Over the long term, nothing less than the overall efficacy of our nuclear deterrent is at stake. We must make this right.

Fortunately, the panel before us today has provided the Congress with an excellent roadmap for reforming NNSA and the labs. The panel recommends, for example, that Congress amend the NNSA Act and adopt related legislation to reintegrate NNSA into DOE. The panel also makes a number of other critical recommendations across a range of operational and management areas, including empowering leadership with well-defined roles and undertaking major reform of the relationships between DOE, NNSA, and its contractors.

NNSA was established 16 years ago, but these management challenges began almost immediately. Problems that many leaders at the time predicted—including leaders of this Committee and President Clinton—have indeed occurred.

The mission of maintaining a safe, secure, and effective nuclear deterrent is too important and there are simply too many detailed recommendations to be addressed properly in a single hearing.

I urge the Chairman to take both of these panel's reports and conduct extensive oversight on how to begin correcting the multitude of problems that have affected NNSA for too long. In particular, it is critical that we explore how to best enact the significant reforms to NNSA's governance that the panel cites as a first step to getting the nuclear security enterprise on a sustainable path.

This Committee can make a real difference here, and I stand ready to work with my colleagues to take on this work.

Document Binder Index

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3	Executive Summary of Final Report of the Commission to Review the Effectiveness of the National Energy Laboratories (CRENEL)
4	Public Comments on the CRENEL report
5	DOE/NNSA response to Nuclear Security Enterprise Report
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7	Secretary of Energy Advisory Board letter on Nuclear Security Enterprise Report
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U.S. HOUSE OF REPRESENTATIVES
COMMITTEE ON ENERGY AND COMMERCE

February 22, 2016

TO: Members, Subcommittee on Oversight and Investigations

FROM: Committee Majority Staff

RE: Hearing entitled "DOE for the 21st Century: Science, Environment, and National Security Missions"

On Wednesday, February 24, 2016, at 11:30 a.m. in 2322 Rayburn House Office Building, the Subcommittee on Oversight and Investigations will hold a hearing entitled "DOE for the 21st Century: Science, Environment, and National Security Missions." The Subcommittee will hear from the co-chairmen of two advisory panels that were requested by Congress to examine respectively: (a) the structure, mission, and management of the nuclear security enterprise and (b) the mission and management of the Department of Energy's (DOE) national laboratories. The hearing will examine the advisory panels' findings and recommendations concerning the governance, management, and accountability necessary for DOE to perform its most critical missions.

I. WITNESSES

- The Honorable Norman R. Augustine, Co-Chairman, Congressional Advisory Panel on the Governance of the Nuclear Security Enterprise, former chairman and CEO Lockheed Martin Corp.;
- Admiral Richard W. Mies, U.S. Navy (Retired), Co-Chairman, Congressional Advisory Panel on the Governance of the Nuclear Security Enterprise, former Commander in Chief of U.S. Strategic Command;
- Dr. Jared L. Cohon, Co-Chairman, Commission to Review the Effectiveness of the National Energy Laboratories, President Emeritus, Carnegie Mellon University; and
- The Honorable TJ Glauthier, Co-Chairman, Commission to Review the Effectiveness of the National Energy Laboratories, former Deputy Secretary, Department of Energy.

II. BACKGROUND

The U.S. Department of Energy, with responsibility for the nation's nuclear weapons and related nuclear security programs, conducts some of the most critical national security-related missions. The Department traces its origins and core nuclear weapons, scientific, and technological missions to the World War II Manhattan Project and subsequently, to the Atomic

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Energy Act of 1946, amended in 1954,¹ which established the Atomic Energy Commission and the nation's policy of civilian control of nuclear energy. DOE was established as a Cabinet agency in 1977 pursuant to the Department of Energy Organization Act. The new agency consolidated the core nuclear security and R&D programs and responsibilities of predecessor agencies with various other Federal energy-related agencies into a single department² under the authority of a single Cabinet Secretary.

Although DOE currently engages a broad range of national security, scientific, and environmental activities across the agency,³ a large portion of its operations are dedicated to its nuclear security mission. This is largely conducted through the Department's National Nuclear Security Administration (NNSA). This mission includes the management and security of the nation's nuclear weapons, nuclear nonproliferation, and naval reactor programs. It also includes response to nuclear and radiological emergencies in the United States and abroad.

In total, DOE's nuclear security activities account for more than 40 percent of the agency's nearly \$30 billion budget. Add the environmental cleanup of the former atomic weapons sites and the agency's atomic energy defense activities surpass 65 percent of the DOE's budget. Of the DOE's 17 National Laboratories, NNSA's 3 nuclear weapons design labs—Los Alamos National Laboratory, Lawrence Livermore National Laboratory, and Sandia National Laboratories—account for nearly half of laboratory budgets at about \$6.4 billion, followed by the Office of Science's 10 laboratories at about \$5.4 billion, and the 4 applied energy laboratories, at about \$2 billion.⁴

Chronic mission management and performance issues: Many of the troublesome and well-publicized challenges confronting DOE's mission fulfillment – project delays and billion-dollar cost overruns, safety and security problems, oversight failures – relate to the essential structure and organizational philosophy of the agency. The majority of DOE missions are performed in the field by contractors, who manage and operate the National Laboratories, weapons production facilities, and cleanup sites.⁵ These contractors conduct the agency's often high-risk, technically unique, and complex projects. As a result, the challenges concerning mission fulfillment have required constant, disciplined vigilance on the part of DOE as it has transformed its operations and facilities to execute post-Cold War national policies. Unfortunately, the vigilance has not always kept up with the challenges, as serious security breaches and safety problems in the 1990s demonstrated, particularly in the nuclear weapons complex.⁶

¹ See Atomic Energy Act of 1954 (42 U.S.C. § 2011 et seq.).

² See Department of Energy Organization Act (August 4, 1977); see also 42 U.S.C Chapter 84.

³ For links to the offices and descriptions of activities, see DOE Program Offices, Labs & Technology Centers, Power Marketing Administration, Operations Offices, Other Agencies and Staff Offices.

⁴ FY2014 total budgets from *Securing America's Future: Realizing the Potential of the Department of Energy's National Laboratories*, Final Report of the Commission to Review the Effectiveness of the National Energy Laboratories, Volume 2, at page 3.

⁵ Use of contractors also stems from the development of Manhattan project, in which the federal government sought to harness the scientific, engineering, and management expertise of academia and industry that did not exist in the Federal government.

⁶ See, for example, the series of Energy and Commerce Committee hearings held on April 20, 1999, June 22, 1999, July 13, 1999, July 20, 1999, and October 26, 1999.

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In 1999, as a result of serious security lapses and other management failures across the nuclear weapons complex, Congress created the NNSA to manage nuclear weapons research and production activities, as well as other defense-related national security and nuclear non-proliferation activities of the Department.⁷ The NNSA was established as a semi-autonomous agency within DOE, subject to “the authority, direction, and control” of the Secretary of Energy.⁸ The concept was that “semi-autonomy” would improve governance over the nuclear security missions and establish an effective operational management and oversight system that would reduce cost-overruns, safety and security failures, and burdensome oversight of the missions, leading to improved performance.

Congressional Advisory Panel on the Governance of the Nuclear Security Enterprise: In the decade following the formation of NNSA, there have been persistent project management, security, and safety problems within the nuclear weapons complex. Accidents and nuclear safety violations contributed to the temporary shutdown of facilities at both Los Alamos and Lawrence Livermore laboratories in 2004 and 2005, respectively, costing taxpayers hundreds of millions of dollars in lost productivity.⁹

More recent issues concerning cost-overruns, cancelled projects, and oversight failures¹⁰ prompted Congress in January 2013 to establish an advisory panel of distinguished individuals “to examine options and make recommendations for revising the governance structure, mission, and management of the nuclear security enterprise.”¹¹

That panel, co-chaired by Mr. Norman Augustine and Admiral Richard Mies, reported its findings and unanimous recommendations in December 2014. The panel found that the structure of NNSA “semi-autonomy” has not established the effective operations system that Congress intended for DOE’s nuclear mission. As the final report, “A New Foundation for the Nuclear Enterprise,” notes:

One unmistakable conclusion is that NNSA governance reform, at least as it has been implemented, has failed to provide the

⁷ DOE continued to manage separately Environmental Management sites and programs and energy-related research and development activities and sites operated by the Office of Science, which to some extent overlap with some NNSA site and facility operations.

⁸ See Section 202 c (3) of the DOE Organization Act, also available at [42 U.S.C. 7132](#).

⁹ Accidents and nuclear safety violations contributed to the temporary shutdown of facilities at both Los Alamos and Lawrence Livermore in 2004 and 2005, respectively, costing taxpayers hundreds of millions of dollars in lost productivity. See for example, “Nuclear and Worker Safety: Actions Needed to Determine the Effectiveness of Safety Improvement Efforts at NNSA’s Weapons Laboratories,” GAO, October 2007. [GAO-08-73](#).

¹⁰ Subcommittee hearings in 2012, 2013, and 2015 highlighted DOE’s current oversight and contractor management challenges, which were most notably demonstrated by the serious security breach at the Y-12 National Security Complex in July 2012 and the oversight failures behind a radiological incident involving Los Alamos Laboratory in 2014. See Subcommittee on Oversight and Investigations hearings on [September 12, 2012](#), [March 13, 2013](#), [July 24, 2013](#), and [June 12, 2015](#).

¹¹ Section 3166 of the [Fiscal Year 2013 National Defense Authorization Act](#) established the Congressional Advisory Panel on the Governance of the Nuclear Security Enterprise and tasks the advisory panel to offer recommendations “with respect to the most appropriate governance structure, mission, and management of the nuclear security enterprise.”

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effective, mission-focused enterprise that Congress intended. The necessary fixes will not be simple or quick, and they must address systemic problems in both management practices and culture that exist across the nuclear enterprise:

- First, a lack of sustained national leadership focus and priority, starting with the end of the Cold War, has undermined the foundation for nuclear enterprise governance and contributes to virtually all of the observed problems;
- Second, inadequate implementation of the legislation establishing NNSA as a separately organized sub element of DOE has resulted in overlapping DOE and NNSA headquarters staffs and blurred ownership and accountability for the nuclear enterprise missions;
- Third, the lack of proven management practices, including a dysfunctional relationship between line managers and mission-support staffs, has undermined the management culture within NNSA;
- Fourth, dysfunctional relationships between the government and its Management and Operating (M&O) site operators has encouraged burdensome transactional oversight rather than management focus on mission execution;
- Fifth, insufficient collaboration between DOE/NNSA and DOD weapons customers has generated misunderstanding, distrust, and frustration.¹²

To address the systemic problems identified, the panel made recommendations along 5 themes:

- Strengthen national leadership focus, direction, and follow through;
- Solidify the Secretary's leadership of the mission;
- Adopt proven management practices to build a culture of performance, accountability, and credibility;
- Maximize the contribution of the management and operating (M&O) organizations to the safe and secure execution of the mission; and
- Strengthen customer collaboration to build trust and shared view of mission success.¹³

Notably, the panel examined NNSA governance reforms and recommended that Congress, rather than increase NNSA autonomy, should reorganize this program within DOE in an appropriate manner to strengthen Secretarial ownership and accountability and to eliminate duplication, which would help ensure mission performance. These themes and recommendations, particularly those involving Congressional action and oversight, and what to expect of DOE, may be explored at the hearing.

¹² See "A New Foundation for the Nuclear Enterprise: Report on the Congressional Advisory Panel on the Governance of the Nuclear Security Enterprise," November 2014, at page xii.

¹³ *Id.* at page xix.

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The Commission to Review the Effectiveness of the National Energy Laboratories:
In 2014, Congress established the “Commission to Review the Effectiveness of the National Energy Laboratories.”¹⁴ The Commission, co-chaired by Mr. TJ Glauthier and Dr. Jared Cohon, was charged with evaluating the 17 DOE National Laboratories in terms of alignment with DOE’s strategic priorities, duplication, ability to meet future energy and national security challenges, size, and support of other Federal agencies, among other topics.¹⁵

Issued in October 2015, the Commission’s report, “Securing America’s Future: Realizing the Potential of the Department of Energy’s National Laboratories,” found in general that the DOE laboratories are performing effectively, but that current oversight models and contracting arrangements could be reformed to enhance mission success. The Commission issued some 36 recommendations across a number of themes, including “rebuilding trust,” “maintaining alignment and quality,” “maximizing impact,” and “managing effectiveness and efficiency.”

Notably, many of the Commission’s recommendations relating to the relationship of DOE, the contractors managing the laboratories, and the laboratory management, align with recommendations in the Congressional Advisory Panel on the Governance of the Nuclear Security Enterprise. Questions at the hearing exploring the cross-cutting lessons, particularly between the management and oversight of the 10 science labs by DOE’s office of Science and the 3 weapons design labs by the NNSA, may help illuminate issues of oversight the Subcommittee has been examining in recent years.

III. ISSUES

The following issues may be examined at the hearing:

- What is the appropriate structure of nuclear enterprise governance and accountability within the Department of Energy?
- What are the most essential management reforms necessary for improving oversight and mission performance of the nuclear security enterprise and DOE’s national laboratories?
- What have been DOE’s actions in response to the recommendations of the 2 panels?

IV. STAFF CONTACTS

If you have any questions regarding this hearing, please contact Peter Spencer or John Ohly of the Committee staff at (202) 225-2927.

¹⁴ See Section 319 of the Consolidated Appropriations Act, 2014.

¹⁵ See “Securing America’s Future: Realizing the Potential of the Department of Energy’s National Laboratories: Final Report of the Commission to Review the Effectiveness of the National Energy Laboratories,” Vol I and II.

Executive Summary

*The course to improve the nation's nuclear security enterprise seems clear...and
the National Nuclear Security Administration has not been on it.*

—Testimony to the panel (unattributed)

The Congressional Advisory Panel on the Governance of the Nuclear Security Enterprise was tasked by the U.S. Congress to examine the mission, organization, and management of this enterprise and consider alternative governance models. The panel notes from the outset that there is no question as to the efficacy of the nuclear deterrent for the foreseeable future. The nuclear stockpile is safe, secure, and reliable, and the quality of science and research is undiminished. However, the panel finds that the existing governance structures and many of the practices of the enterprise are inefficient and ineffective, thereby putting the entire enterprise at risk over the long term. These problems have not occurred overnight; they are the result of decades of neglect. This is in spite of the efforts of many capable and dedicated people who must nonetheless function within the confines of a dysfunctional system.

This is no time for complacency about the U.S. nuclear deterrent. Nuclear forces provide the ultimate guarantee against major war and coercion, and America's allies depend on these forces and capabilities for extended deterrence. Other countries carefully measure U.S. resolve and technological might in making decisions on global and regional security matters, many of which are of vital concern to the United States. Hence, while the current viability of the U.S. nuclear deterrent is not in question, it will need to be sustained to meet future security needs and the long-term health of the enterprise is a critical necessity.

The panel's review has encompassed the communities with essential responsibilities for the nuclear enterprise: the national leadership in the Executive Branch and Congress; the relevant policy and oversight organizations within the Department of Energy (DOE) and the National Nuclear Security Administration (NNSA); the operating sites in the nuclear weapons complex; and NNSA's customers in the Department of Defense (DOD), the Department of State, the Intelligence Community, and the Department of Homeland Security.¹ Additionally, the panel

¹ The panel's fact finding was largely completed between October 2013 and February 2014. While the panel received updates on specific issues through July 2014, and it has sought to recognize some of the important changes currently underway by DOE/NNSA, the findings are necessarily focused on the situation as of early

examined the proven management practices of several high-performing, high-technology organizations both in the private sector and in government. The panel reviewed previous studies, conducted on-site visits across the nuclear weapons complex (laboratories, plants, and the Nevada National Security Site), and benefitted from the views of dozens of expert witnesses. The panel focused its attention largely (but not exclusively) on the nuclear weapons stockpile mission. This focus reflects the fundamental importance of the mission and its associated capabilities, and the judgment based on initial fact finding that there were major challenges associated with defining and executing this mission.

The findings and recommendations detailed in this report have the unanimous support of the panel members. The common belief is that significant and wide-reaching reform is needed to create a nuclear enterprise capable of meeting the nation's needs. While panel members differ on certain details, there is deep agreement on the overall direction—and urgency—of the reforms outlined here.

One unmistakable conclusion is that NNSA governance reform, at least as it has been implemented, has failed to provide the effective, mission-focused enterprise that Congress intended. The necessary fixes will not be simple or quick, and they must address systemic problems in both management practices and culture that exist across the nuclear enterprise:

- First, a lack of sustained national leadership focus and priority, starting with the end of the Cold War, has undermined the foundation for nuclear enterprise governance and contributes to virtually all of the observed problems;
- Second, inadequate implementation of the legislation establishing NNSA as a separately organized subelement of DOE has resulted in overlapping DOE and NNSA headquarters staffs and blurred ownership and accountability for the nuclear enterprise missions;
- Third, the lack of proven management practices, including a dysfunctional relationship between line managers and mission-support staffs, has undermined the management culture within NNSA;
- Fourth, dysfunctional relationships between the government and its Management and Operating (M&O) site operators has encouraged burdensome transactional oversight rather than management focus on mission execution;
- Fifth, insufficient collaboration between DOE/NNSA and DOD weapons customers has generated misunderstanding, distrust, and frustration.

2014. Thus, this report does not reflect on the leadership of the new NNSA Administrator, Lt. Gen. (ret) Frank G. Klotz, who took office in May 2014. The panel also recognizes that U.S. Secretary of Energy Dr. Ernest Moniz has been in his position only a limited time and has been actively pursuing initiatives to improve some of the identified problems. Several DOE management initiatives begun since the panel's interim report was issued in April 2014 are reported in the relevant sections of the report.

To achieve the conditions for success, the panel recommends fundamental reforms that touch on every component of the enterprise. The current senior leadership of the DOE has taken some important initial steps to rectify failings, but the enterprise as a whole continues to struggle to meet commitments and the underlying problems will not be fixed without major reform. Given the fact that many of these problems are attributable to cultural shortcomings, the solution will not be easy and will inevitably transcend any one leadership team.

A brief summary of the needed improvements suggests the depth of the challenges facing the enterprise. The details of the panel's findings and recommendations are provided in Chapters One to Five in the body of this report. The Table of Recommendations lists the panel's specific recommendations.

Strengthen National Leadership Focus, Direction, and Follow-Through

(Recommendations 1 and 2)

At the root of the challenges faced by the nuclear enterprise is the loss of focus on the nuclear mission across the nation and within U.S. leadership as a whole since the end of the Cold War. Every aspect of the enterprise is colored by the fact that, bluntly stated, nuclear weapons have become *orphans* in both the Executive and Legislative branches. This has been reflected by the lack of an urgent and clear mission and lack of follow-through in assuring adequate performance to modernize the nuclear stockpile on schedule and on budget. Nowhere is this more evident than among those working in the nuclear enterprise, many of whom feel that they are in a declining career field. Although the national leadership has provided high-level policy statements and substantial sums of money to the enterprise, the results achieved by the enterprise have frequently been unacceptable. Sustained and focused national commitment is required.

The panel recommends that the President and Congress adopt a number of new mechanisms designed to set enterprise priorities and program expectations, demand feasible customer-driven plans for the enterprise, assure the adequacy of assigned resources, and advance needed governance reforms. The panel believes that expanding the existing annual Office of Management and Budget (OMB)/DOD budget/program review to include the nuclear weapons portfolio would reinforce this and could help synchronize the nuclear security programs and budgets across the two Departments. The panel further recommends that Congress adopt mechanisms to strengthen committee oversight and unify support for the enterprise. Such efforts should seek improved coordination across missions as well as between authorizers and appropriators, and thus synchronize the work of the multiple cognizant subcommittees to provide a more focused jurisdiction.

Solidify Cabinet Secretary Ownership of the Mission

(Recommendations 3–5)

Despite the intent of the NNSA Act to create a *separately organized* NNSA within DOE, the Act as implemented did not achieve the intended degree of clarity in enterprise roles and mission ownership. NNSA was not provided the line-management authority necessary to integrate safety, security, and environmental concerns into the decision making for executing NNSA's missions; nor was an effective policy implementation framework established. The Act, as implemented, made organizational changes designed to insulate NNSA from DOE headquarters without specifying the Secretary's roles, without stipulating the relationships between NNSA and DOE headquarters staffs, and without requiring actions to shift the Department's culture toward a focus on mission performance. The panel concludes that the relationships among NNSA, the Secretary of Energy, and the DOE headquarters are not properly aligned with mission needs today and are therefore in need of major reform.

As directed by Congress, the panel explored a range of options for an organizational structure that would address the problems created in establishing NNSA. The panel concludes that the nuclear enterprise would be most effective in performing its missions if it were led by a knowledgeable, engaged Cabinet Secretary and if ownership of the mission were Department-wide. Hence, the solution is not to seek a higher degree of autonomy for NNSA, because that approach would only further isolate the enterprise from needed Cabinet Secretary leadership. Instead, it is recommended that Congress place the responsibility and accountability for the mission squarely on the shoulders of a qualified Secretary, supported by a strong enterprise Director with unquestioned authority to execute nuclear enterprise missions consistent with the Secretary's policy direction.

Every alternative to this approach has significant weaknesses:

- The panel first considered the option of reorganizing DOE/NNSA to strengthen NNSA's autonomy within the Department of Energy (effectively, an improved status quo). This was rejected because numerous studies and the panel's own fact-finding revealed that DOE's current *separately-organized* approach is fundamentally flawed, and that adjustments would not be sufficient to correct either the structural or cultural problems.
- The panel also explored the model of NNSA as an independent agency. The panel concluded that a mission this important to U.S. national security requires Cabinet-level ownership and support.
- The panel further evaluated three variants of a greater role for the Department of Defense. In each case, given the magnitude of DOD's existing challenges, there is considerable uncertainty about DOD's willingness and ability to integrate and support an organization with a very different scientific and civilian culture.

To achieve the right leadership structure—a Cabinet Secretary who sets policy and a Director who is empowered to implement the policy—the panel recommends amending the NNSA Act to replace the “separately-organized” NNSA with a new Office of Nuclear Security (ONS) within the Department charged with performing the missions currently performed by NNSA. (Proposed statutory language is provided in Appendix C.) The proposed legislation includes new confirmation and reporting requirements to underscore the Secretary’s enterprise leadership roles and accountability and to emphasize the qualifications needed to lead the enterprise. It also assigns a new name—The Department of Energy and Nuclear Security (DOE&NS)—to highlight the prominence and importance of the Department’s nuclear security missions (over 40 percent of the Department’s budget is for nuclear security) and to stress the importance of the needed cultural change.²

Central to this reform is to establish the Director of ONS as the unquestioned line-management authority for safe, secure, and environmentally responsible mission execution. The Director’s qualifications, authorities, and accountability must be carefully stipulated. In the panel’s proposed formulation

- The Director must possess strong technical management capabilities.
- For leadership and continuity, the Director’s position should be an executive schedule II with a tenure of at least six years (subject to Presidential review).
- The Director has direct access to the President on issues critical to ONS’s missions (nuclear stockpile safety, security and reliability, non-proliferation, etc.).
- The Director has direct access to the Secretary on all ONS matters.
- The Director is assigned risk acceptance responsibility and authority on ONS matters, taking full responsibility and accountability for executing the Secretary’s policies for the nuclear security missions safely, securely, and environmentally responsibly.
 - Mission-support staffs advise the Director on risk-acceptance decisions.
 - Any disagreements between line managers and mission-support staffs are quickly raised through a clearly defined appeals process.
- The Director has full authority to shape and manage the ONS technical staff.³

² In this report, when referring to the present, the terms DOE and NNSA are used. In the panel’s recommendations and in referring to the future, the panel’s recommended names, DOE&NS and ONS, are used.

³ Recognizing the constraints of the civil service system, all nonadministrative ONS personnel should be from the Senior Executive Service or the Excepted Service in order to permit the Director this necessary authority.

The panel judged these attributes of the Director to be paramount in empowering a leader capable of executing all aspects of the mission and reforming the enterprise's culture. The panel recommends that the Director serve concurrently as a second Deputy Secretary in the Department or as an Under Secretary. While the panel did not agree on the appropriate rank, it does agree that this question of rank is less essential for success than is establishing an effective working relationship with a knowledgeable, engaged Secretary and providing the Director all the necessary authorities as described above. As a result, the panel notes the potential options but offers no recommendation on this one specific issue.

The strengthened roles of the Secretary and Director will be enhanced by the complementary and combined effects of increased focus and follow-through from the White House and Congress and the adoption of proven leadership and management processes. If for any reason the nation's leadership is not prepared to require the Secretary to possess the qualifications demanded by the nuclear security mission, or to provide the Director the necessary mission execution authorities, then only one option remains: an autonomous organization to replace some or all of the functions of NNSA. This is viewed by the panel as a clearly inferior choice.

Adopt Proven Management Practices to Build a Culture of Performance, Accountability, and Credibility

(Recommendations 6–13)

NNSA, and associated policy and oversight organizations within the Department, reflect few of the characteristics of the successful organizations benchmarked for this study. Participants at all levels report that DOE/NNSA is an organization with many pockets of talented, technically competent people operating within a culture that lacks a unifying focus on mission deliverables, is risk averse, has poorly defined chains of command, and has inadequate personnel management. A major overhaul will be needed to transform the organization into one with a mission-driven management culture.

The panel identifies a number of management best practices, based on high-performing benchmarked organizations that, if implemented effectively, would bring about the needed reforms. Prominent among them are a capable, empowered leadership with well-defined roles and responsibilities; clear plans with careful analysis of the resources needed to succeed; a clear line-management structure; strong program managers focused on mission deliverables; effective communications; a focus on conveying effective incentives to suppliers; and clear accountability. The panel's recommendations would establish proven practices in each of these areas. Aggressive implementation would significantly improve performance in the near term, thus addressing well-known morale issues and, in time, reshaping the management culture.

Maximize the Contributions of the Management and Operating (M&O) Organizations to the Safe, Secure Execution of the Mission

(Recommendations 14–17)

The open communication and collaboration on program and technical matters that historically existed between the M&Os and Federal officials has eroded over the past two decades to an arm's length, customer-to-contractor and, occasionally, adversarial relationship. In the case of the laboratories, this has led to a significant loss in their contributions historically stemming from the special Federally Funded Research and Development Center (FFRDC) relationship. The erosion of trust—a critical element in the FFRDC relationship—observed by the panel was also highlighted by a recent National Research Council of the National Academies study.⁴ The panel concurs that the special relationship of trust between the government and the three NNSA laboratories has been eroded by unclear accountability for risk and a fee structure and contract approach that invites detailed, tactical, and transactional oversight rather than a strategic, performance-based management approach. Excessive and fragmented budget control lines also confound effective and efficient programmatic management, erode flexibility, and undermine the sense of trust.

The panel recommends a major reform of existing incentives and relationships, building on steps already begun by the current leadership. Award fees have diverted substantial energy and resources from mission execution; these fees should be replaced by fixed fees that fairly compensate the M&O organizations for their investments in the enterprise and their risks (both financial and reputational). Contract term extensions should be the main vehicle used to encourage M&O performance. DOE must define a collaborative relationship that attracts the best performers and emphasizes taking full advantage of the M&Os' ability to provide skilled personnel and strong management cultures, as well as proven systems, processes, and practices for effective and efficient mission execution.

Strengthen Customer Collaboration to Build Trust and a Shared View of Mission Success

(Recommendations 18 and 19)

The nuclear enterprise cannot succeed if participants are distrustful of one another and are seen to be divided on major goals and priorities. The trust issues identified by the panel are mainly with the Department of Defense nuclear weapons customers who have repeatedly seen NNSA over-promise and under-deliver. These DOD customers lack confidence in NNSA's ability to execute warhead life extension programs (LEPs) and major nuclear facility

⁴ National Research Council, *The Quality of Science and Engineering at the NNSA National Security Laboratories* (Washington, DC: National Academies Press, 2013), 72.

modernization projects. This is both a cultural and communications divide. A fundamental void is the lack of an affordable, executable joint DOD-DOE vision, plan, or program for the future of nuclear deterrence capabilities. Although the customers in other mission areas from DOD, the Intelligence Community and elsewhere appear to be satisfied, here, too, a more strategic approach would strengthen both capabilities and the services provided.

The Secretary and Director must take a strong lead in building a culture focused on meeting customer needs. The panel recommends steps to strengthen DOE-DOD collaboration at the level of the Secretaries to align the planning, programming and execution of sustainment and modernization programs for nuclear weapons and their delivery platforms. More generally, the process for NNSA *Interagency Work* should be simplified and streamlined to enhance efficiency.

Conclusion

The panel concludes that the needed leadership for executing this mission is best provided by an engaged Cabinet Secretary with national security qualifications, and with effective execution led by a qualified, empowered Director focused on mission deliverables. After an extended gap in the permanent leadership team, the NNSA now has two very experienced top executives in place. The panel's report outlines a vision and reform agenda for the Secretary and this new team. Given that the disorders observed are more cultural than structural, organizational reform and revision of the NNSA Act, while essential, are only a first step in the actions needed to achieve success. Even with an effective Departmental team in place, success is imaginable only with the strong and active support of the White House and Congress. The panel, therefore, attaches great importance to sustained White House and Congressional focus in ensuring successful implementation of these reforms.

If action is reasonably prompt, measurable progress should be observed very quickly—in a matter of a few months. The panel's final recommendation, as described in Chapter 6, is that a follow-on review be conducted two years from now to assess the status of reform. This review should focus on certain concrete indicators of change such as the following:

- Presidential guidance is in place addressing an executable, funded long-term plan for modernizing the nuclear deterrent capabilities, aligned with DOE&NS and DOD and updated annually, for platform modernization, warhead life extension, and infrastructure recapitalization; DOE&NS and DOD programs are in place to execute this plan
- Highly qualified experts from the National Security Council staff are routinely engaged in policy development and nuclear enterprise oversight and strategic direction
- Congress supports the panel's approach by amending the NNSA Act to clarify the roles of the Secretary, and provide the Director, ONS with the authorities needed to succeed
- Congressional committees and associated staffs are well versed and routinely engage in matters pertaining to the nuclear security enterprise and they are working in a

collaborative manner that ensures consistent, efficient, and effective authorization, appropriation, and oversight

- A strong DOE&NS and ONS leadership team is in place; Congress agrees that political appointments for the Secretary and Director be confirmed by both the Senate Energy and Natural Resources and Armed Services Committees
- The DOE&NS has clearly delineated and documented the authorities of the Director, ONS and his or her relationship with other senior DOE&NS officials, including managers responsible for mission-support functions
- A *risk management* culture has replaced the existing *risk aversion* culture; technical competence is restored within the workforce to address safety issues raised by the Defense Nuclear Facilities Safety Board (DNFSB)
- Internal management reforms have substantially reduced excessively burdensome budgeting detail and transactional oversight, and have led to substantial staff realignments and a performance-based approach; a Federal staff right-sizing plan is in place and being executed
- Warhead Life Extension Program and Infrastructure Modernization Program Managers are established in ONS with control over program resources and accountability for delivering on agreed schedules
- Cost-estimating and resource management staffs are in place, and work is underway to develop needed management tools and data
- The Director, ONS has developed an executable plan to build needed new facilities, reduce maintenance backlogs, and eliminate outmoded facilities
- Mechanisms for strategic dialogue have been instituted and the government-M&O/FFRDC relationships have been restored
- Laboratory Directors, plant managers, and M&O leadership have developed, and are executing, plans that provide for clear identification of required technical work and infrastructure sustainment, accurate and transparent cost accounting, and initiatives to continuously improve value performance
- Contracts with the M&Os have been revised to provide incentives focused on mission success, replacing large award fees with fixed fees and the potential for contract extensions
- ONS customers express satisfaction with collaboration, information sharing, and business practices, as well as performance in delivering on their needs

Demonstrated performance is the ultimate measure of success and the foundation for credibility and trust. The panel believes that its recommendations, as summarized in the Table of Recommendations, if fully and effectively implemented, provide the best chance for a reformed Department and new Office of Nuclear Security to be able to carry out its mission and thus restore trust and credibility with customers and national leaders. If, based on independent oversight, attention to implementation is lacking, and significant progress is not made within the next two years, then the panel believes the only course of action—and a clearly inferior one—is to remove ONS from the Department and make it an independent, autonomous agency.

Table of Recommendations

Strengthen National Leadership Focus, Direction, and Follow-Through	
<p>1. The President should provide guidance and oversight sufficient to direct and align nuclear security policies, plans, programs, and budgets across Departments.</p> <p>1.1 The President should reaffirm the importance of the mission and align DOE&NS and DOD priorities through an expanded President's annual stockpile guidance.</p> <p>1.2 The President should require annual OMB joint budget reviews to shape and align DOE&NS and DOD programs and budgets.</p> <p>1.3 The President should require annual NSC joint program reviews to shape and align DOE&NS and DOD programs and policies.</p>	
<p>2. Congress should establish new mechanisms to strengthen and unify its leadership and oversight of the nuclear enterprise and its missions.</p> <p>2.1 Congress should add Senate Armed Services Committee approval to the confirmation and reporting requirements for the Secretary and Deputy Secretary of DOE&NS (and continue to have the Director, ONS be approved by the Senate Armed Services Committee).</p> <p>2.2 Congress should require the Secretary to testify annually on the health of the enterprise, and on progress in reforming its governance, to the Senate Energy and Natural Resources and Senate Armed Services Committees, and to the House Energy and Commerce and House Armed Services Committees.</p> <p>2.3 Congress should implement information sharing and collaboration mechanisms to unify and strengthen its mission-focused oversight across cognizant committees and to better harmonize direction and oversight across the enterprise's mission areas.</p>	
Solidify Cabinet Secretary Ownership of the Mission	
<p>3. Congress should amend the NNSA Act and related legislation to clarify Departmental leadership roles.</p> <ul style="list-style-type: none"> • The Secretary "owns" the nuclear enterprise missions, sets Departmental policy for the nuclear enterprise, and is accountable to the President and Congress for the enterprise. • The Director, Office of Nuclear Security (ONS) has full authority to execute the nuclear enterprise missions consistent with the Secretary's policy. • Departmental mission-support staffs advise and assist the Director in executing enterprise missions. 	
<p>3.1 The amended legislation should specify the Secretary's leadership responsibilities and define duties that underscore the Secretary's accountability for the nuclear enterprise and its missions.</p> <p>3.2 The amended legislation should create the Office of Nuclear Security (ONS) within the Department to perform the missions currently assigned to NNSA.</p> <p>3.3 The amended legislation should designate a Director, Office of Nuclear Security with full authority to execute nuclear enterprise missions under the policy direction of the Secretary. The</p>	

<p>Director should have tenure of at least six years, be compensated at the rate of Executive Schedule Level II, and hold the Departmental rank of a Deputy Secretary or Under Secretary.⁵</p> <p>3.4 The amended legislation should assign risk acceptance authority and accountability to the Director for ONS mission execution.</p> <p>3.5 The amended legislation should grant the Director authority to appoint senior officials in ONS, including the conversion of three Senate-confirmed direct-report positions (Principal Deputy, Assistant Secretary for Defense Programs, and Assistant Secretary for Non-Proliferation Programs) to Senior Executive Service or Excepted Service positions.</p> <p>3.6 The amended legislation should emphasize the importance of the nuclear enterprise missions, by changing the name of the Department to the "Department of Energy and Nuclear Security."</p>	
<p>4. The Secretary should implement Departmental management processes that specify the Director's authorities for executing nuclear enterprise missions. These authorities include:</p> <ul style="list-style-type: none"> • Line management authority for the safe, secure, and environmentally responsible execution of nuclear security missions • Management authority for mission-support staffs assigned to the Office of Nuclear Security • Concurrence authority for Departmental rulemaking on ONS matters <p>4.1 The Secretary should establish decision-making practices among the senior headquarters staffs that codify the Director's authority to execute the nuclear security missions consistent with the Secretary's policies.</p> <p>4.2 The Secretary should establish a matrix management structure that</p> <ul style="list-style-type: none"> • Aligns and codifies roles, responsibilities, authority, and accountability • Specifies the Director's leadership authority over line-management and mission-support ("functional") staffs assigned to ONS • Eliminates overlapping headquarters staffs <p>4.3 The Secretary should adopt processes defining the Director's role in ensuring applicable DOE&NS policies, rules, and orders are compatible with the operating circumstances of the nuclear security enterprise.</p> <p>4.4 The Secretary should designate those senior headquarters positions that have line-management decision authorities and those that are responsible for mission-support functions.</p>	
<p>5. The Secretary and Director should reform DOE regulation to strengthen risk management.</p> <p>5.1 The Secretary should strengthen the Department's analytical expertise and processes for assessing risks, especially for nuclear and other high-hazard functions.</p> <p>5.2 The Secretary should direct a comprehensive review and reform of the Department's ES&H and Security Orders and Directives to reflect best industry practices.</p> <p>5.3 The Secretary (with Congressional concurrence) should establish a mechanism to improve the Department's ability to respond to inquiries, findings, and recommendations of the Defense Nuclear Facilities Safety Board.</p>	

⁵ The panel recommends the Director hold either the rank of Deputy Secretary or Under Secretary, but did not agree on a specific rank.

Adopt Proven Management Practices to Build a Culture of Performance, Accountability, and Credibility	
<p>6. To begin reforming the DOE&NS culture, the Secretary and Director should develop within six months a plan for continuous management learning and improvement, including an implementation plan for the panel's recommendations with milestone target dates.</p> <p>6.1 The Secretary and Director should urgently develop a more robust, integrated DOE&NS/ONS-wide process to provide accountability and follow-up on findings and recommendations from studies and reviews, both internal and external.</p> <p>6.2 The Secretary and Director should establish management metrics for assessing and improving enterprise management.</p> <p>6.3 The Secretary and Director should routinely survey personnel to gauge morale, assess cultural changes, and identify the results of efforts to change management practices.</p> <p>6.4 The Secretary and Director should aggressively communicate reform plans and objectives.</p>	
<p>7. The Secretary and Director should implement industry best practices for shaping and building the enterprise workforce.</p> <p>7.1 The Secretary and Director should establish strong career and leadership development programs, require rotational assignments, and place greater emphasis on continuing education and professional certifications.</p> <p>7.2 The Secretary and Director should reshape staffs as needed to implement governance reforms.</p> <p>7.3 The Secretary and Director should conduct a zero-based personnel review to right-size government staffs consistent with recommended reforms and changing workload since the end of the Cold War; this review should include the consolidation of headquarters activities across DOE&NS's Forrestal headquarters, the Germantown campus, and the Albuquerque complex.</p>	
<p>8. The Secretary should establish trusted Cost Analysis and Resource Management staffs, tools, and data; the Director should be responsible for this process in ONS.</p> <p>8.1 The Secretary and Director should strengthen the Department's efforts to develop independent cost and resource analysis capabilities.</p> <p>8.2 The Secretary and Director should employ a rigorous Analyses of Alternatives process during program formulation as the basis for assessing and validating program requirements.</p> <p>8.3 The Secretary and Director should take advantage of established DOD resource analysis capabilities in establishing DOE's cost analysis and resource management capabilities.</p>	
<p>9. The Director should establish a simple, clear line-management operating structure that both synchronizes activities across programs, mission-support functions, and operating sites and provides leadership focus for key programs.</p> <p>9.1 The Director should create operational mechanisms to perform the key synchronization functions that used to be performed by the Albuquerque Operations Office.</p> <p>9.2 Deputy Directors should be designated to lead in the integrated planning and execution of programs in their mission areas of responsibility.</p> <p>9.3 The Deputy Director responsible for Life Extension Programs, working with DOD, should create a long-term operating plan to support the nation's warhead modernization strategy; this plan should be designed to create a relatively stable, long-term workload.</p>	

<p>10. The Director should establish program managers who are provided necessary authorities and resources, and who are held accountable for major mission deliverables.</p> <p>10.1 The Director, in coordination with the responsible Deputy Director, should designate program managers for each Life Extension Program and major construction project.</p> <p>10.2 Program managers should be held accountable to employ effective management practices.</p> <p>10.3 The Director should delegate to the program managers control of any funds identified as uniquely required to execute their programs.</p> <p>10.4 The Director should delegate control over personnel assigned to their programs to the program managers.</p>
<p>11. The Congress, Secretary, and Director should adopt a simplified budget and accounting structure (by reducing budget control lines) that aligns resources to achieve efficient mission execution while providing sufficient visibility to enable effective management oversight.</p> <p>11.1 Congress should reduce the number of Congressional budget control lines to the number of major programs plus major mission-support functions.</p> <p>11.2 The Director should reduce ONS's internal budget control lines to the minimum number needed to assign funding for major programs and mission-support activities across the sites.</p> <p>11.3 Infrastructure funding that is uniquely required for the execution of Life Extension Programs should be integrated into the portfolio of the Deputy Director for Defense Programs.</p>
<p>12. The Director should develop a strategy and plan to reshape the weapons complex to meet future needs.</p> <p>12.1 The Director should ensure that the strategy and plan identify and address the deferred maintenance backlog.</p> <p>12.2 The Director should ensure that the strategy and plan match (and, in many cases, reduce) the infrastructure needed to meet requirements.</p> <p>12.3 The Director should ensure that the strategy and plan identify investments in the needed skills in the workforce.</p> <p>12.4 The Director should ensure that the strategy and plan specify investments in capabilities, including the sites' use of internally directed research and development. The panel recommends Laboratory Directed Research and Development (LDRD) funding of no less than 6 percent, which is needed to sustain leadership in nuclear science, engineering, and manufacturing.</p>
<p>13. The Secretary and Director should continue ongoing efforts to improve construction project management capabilities (at all levels) by introducing disciplined management practices in order to recapitalize infrastructure on time and on budget.</p> <p>13.1 The Director should strengthen infrastructure project management skills, tools, and the collection and analysis of data.</p> <p>13.2 The Director should build on recent efforts to adopt best practices for managing infrastructure projects, especially the use of external peer review.</p> <p>13.3 The Secretary and Director should hold managers accountable for adopting the effective practices detailed in the Department's directive on project management (Order 413), consistent with the principles provided in OMB Circular A-11 in infrastructure projects.</p>

Maximize the Contributions of the Management and Operating (M&O) Organizations to the Safe, Secure Execution of the Mission
<p>14. The Director should reform M&O contracts, replacing the award fee structure with fixed fees for longer (multi-year) award terms and linking performance incentives to the contractual period of performance.</p> <p>14.1 The Director should adopt market-based fixed fees for new M&O contracts commensurate with M&O-borne risks, M&O investments in the enterprise, and the scale of the undertaking.</p> <p>14.2 Where practicable, the Director should convert existing contracts to similar fixed fee arrangements.</p> <p>14.3 The Director should base decisions to extend an M&O contract's period of performance primarily on contributions to mission performance; unsatisfactory performance should lead to early termination.</p> <p>14.4 The Director should seek greater standardization of contract provisions across similar entities.</p>
<p>15. The Secretary and Director should reinforce the M&O parent organizations' obligations to contribute to enterprise management improvement initiatives.</p> <p>15.1 The Director should create collaborative mechanisms to strengthen the joint contributions of the M&O organizations in improving the effectiveness and efficiency of enterprise operations.</p> <p>15.2 The Director should task M&O organizations to identify and assess management improvement opportunities, both for mission execution and for mission-support functions.</p>
<p>16. The Secretary and Director should eliminate wasteful and ineffective transactional oversight.</p> <p>16.1 The Secretary and Director should direct a reduction in the number of audits, inspections, and formal data calls, and better synchronize those that remain.</p> <p>16.2 The Secretary and Director should eliminate transactional oversight in areas where there are better mechanisms for certifying contractor performance, to include reform of the field office's staffing levels and performance criteria.</p>
<p>17. The Secretary, Director, and the National Laboratory Directors should adopt management practices that serve to rebuild the strategic Government-FFRDC relationship.</p> <p>17.1 The Secretary and Director should continue to reinvigorate the strategic dialog with the Laboratory Directors.</p> <p>17.2 Leaders in both the government and M&Os should prescribe and enforce behaviors that rebuild credibility and trust.</p> <p>17.3 The appropriate government officials (e.g., Deputy Directors, program managers) should meet at least monthly with the M&O leadership, and preferably have daily informal interactions.</p>

Strengthen Customer Collaboration to Build Trust and a Shared View of Mission Success
<p>18. The Secretary should collaborate with the Secretary of Defense to better align the planning, resourcing, and execution of sustainment and modernization programs for nuclear weapons and their supporting infrastructure with DOD's delivery platforms.</p> <p>18.1 The Department Secretaries should direct activities that foster collaboration and communications among the principals and staffs supporting the Nuclear Weapons Council (NWC).</p> <p>18.2 The Department Secretaries, supported by the chairman and members of the NWC, should reinvigorate its working-level elements.</p> <p>18.3 The Department Secretaries should establish transparent information sharing mechanisms and increase direct staff collaboration on a daily basis to address persistent communications and trust issues.</p> <p>18.4 The Department Secretaries should confer on each Department's proposed co-chair to the Standing and Safety Committee (SSC), which reports to the NWC.</p> <p>18.5 The Department Secretaries should involve the NWC in drafting and reviewing the annual assessment to the NSC of progress on meeting Presidential guidance.</p> <p>18.6 The Director should strengthen the roles, responsibilities, and accountability of the senior military officer assigned to ONS in order to improve DOE&NS-DOD collaboration.</p>
<p>19. The Secretary and Director should align and streamline processes for collaboration with Interagency customers.</p> <p>19.1 The Secretary, working through the Mission Executive Council, should improve coordination for planning and executing Interagency Work.</p> <p>19.2 The Mission Executive Council should annually conduct a review of the execution of Interagency Work across the nuclear security enterprise to identify improvement opportunities in working relationships, collaborative mechanisms, and management practices.</p>

Executive Summary

The Department of Energy (DOE) laboratories are national assets that have contributed profoundly to the Nation's security, scientific leadership, and economic competitiveness. In recognition of the continuing and evolving threats to our security and the dramatic increase in global economic and scientific competition, the laboratories are and will continue to be vitally important.

Yet, the contributions of the National Laboratories are not inevitable, nor have they realized their full potential. This final report of the Commission to Review the Effectiveness of the National Energy Laboratories recommends ways the laboratories could overcome challenges to more efficiently and effectively accomplish the work for which they are uniquely suited. The Commission's unanimous findings and recommendations are grouped around six themes:

- Recognizing value
- Rebuilding trust
- Maintaining alignment and quality
- Maximizing impact
- Managing effectiveness and efficiency
- Ensuring lasting change

Recognizing Value

The National Laboratories provide critical capabilities and facilities in service of DOE's mission, the needs of the broader national science and technology (S&T) community, and the Nation as a whole. They, for example, offer a unique venue for the conduct of major, long-term, high-payoff/high-risk research. The funding for the laboratories has remained flat in constant dollars over the past decade. In addition, the amount of Federal research and development (R&D) support to DOE as a whole has stayed relatively level for the past 40 years, a period during which many other nations have increased their research investments. The Nation should recognize the value of these laboratories and the Administration and Congress should provide the necessary resources to maintain their critical capabilities and facilities.

Rebuilding Trust

The intended relationship between DOE and the National Energy Laboratories is as trusted partners, working together to carry out critical missions for the Nation. The Federal Government develops important R&D programs and turns to the National Laboratories to provide the expert people, facilities, and management systems to carry them out. Sixteen of the 17 laboratories are run as federally funded research and development centers (FFRDCs), managed through a management and operating (M&O) contract. Under the FFRDC/M&O model, the government is responsible for setting the “*what*” of strategic and program direction to meet the Nation’s needs, while the contracted partners, along with the laboratories they manage and operate, are responsible for determining precisely “*how*” to meet the technical and scientific challenges and to carry out programs. Over the years, the relationship between DOE and many of the laboratories has eroded. This has resulted in a less-than-optimal working relationship and reduced efficiency.

DOE and the National Laboratories, with the support of Congress and others, must work together as partners to restore the FFRDC relationship with a culture of trust and accountability. As a foundation for this, the partners should jointly establish annual operating plans that delegate clearly defined authority to the laboratories in exchange for transparency and successful mission performance. Laboratories that earn DOE’s trust should enjoy greater freedom to operate, while others will continue to experience heightened DOE oversight and control. DOE should strengthen leadership and management development for its Federal workforce—including multi-directional rotational assignments with the laboratories, field elements, and headquarters—to improve its ability to manage in this mode. DOE should abandon *incentive* award fees in their M&O contracts with the National Laboratories in favor of a fixed fee set at competitive rates. These rates should take into account contractor investments of talent and funds, as well as financial and reputational risk. DOE should also adopt a broader and richer set of incentives and consequences to motivate sound laboratory management and enforce accountability.

Enabling the laboratories to take more responsibility for managing their activities involves rebalancing contract requirements, local oversight, assessments and data calls, and budgeting. For example, for non-nuclear, non-high-hazard, unclassified activities, DOE should allow laboratories to use Federal, State, and industry standards in place of DOE requirements. DOE should also utilize a risk-based model with meaningful stakeholder engagement when developing new requirements and conducting assessments.

While DOE has attempted to shift from transactional compliance to a performance-based oversight model by implementing a contractor assurance system (CAS) at each of the laboratories, systematic improvements to the implementation and utilization of the CAS must be made at many laboratories. All stakeholders responsible for assessments should reduce duplicative assessments and burden on the laboratories by making maximum use of these local assessments, and DOE should establish a single point of control over data

requests to the laboratories. Also the roles and responsibilities of site offices and support centers must be clarified; support centers should not have approval authority.

DOE should give laboratories more flexibility to manage funds with full accountability within legal bounds. This translates to larger funding increments, fewer budgetary buckets, longer timelines with fewer milestones, and in many cases, notification rather than approval for fund transfers.

Maintaining Alignment and Quality

Despite the lack of a Department-wide, comprehensive, in-depth, long-term, strategic planning process, the National Laboratories' research programs and capabilities are generally well-aligned with DOE's missions and strategic priorities. There are robust processes in some program offices (particularly the Office of Science [SC]) that provide strategic oversight, evaluation, and direction to the laboratories. To improve the consistency of those processes across the Department, all DOE offices should adapt the processes of SC for laboratory planning, alignment, and quality to their particular contexts.

To maintain the quality of the technical staff, DOE should proactively encourage laboratory researchers to attend and participate in conferences—both national and international—so they may keep abreast of the latest developments in S&T. The Commission is encouraged by DOE's recently revised guidance on conference-related activities and spending, noting that the laboratories have been given more autonomy on this issue, while at the same time being held accountable for the appropriate use of taxpayer funds.

The ability to adapt, retool, invest in staff and capabilities, and enter new research areas is crucial to laboratory performance and maintenance of high-quality staff and research. Laboratories rely in large part on laboratory directed research and development (LDRD) programs to achieve these goals. Congress should support LDRD by restoring the LDRD cap to an unburdened 6 percent, or its equivalent, of laboratory budget.

To maximize the laboratories combined efforts, DOE should manage them as a system having an overarching strategic plan that gives the laboratories the flexibility to pursue new lines of inquiry so long as the research aligns with mission priorities. Similar and competitive laboratory programs add value in the early, discovery phases of a new research initiative, but, once the research has matured to the point that a preferred or most promising approach can be identified, the Department should assert its strategic oversight and guidance to coordinate and potentially consolidate programs to achieve the most effective and efficient use of resources.

Maximizing Impact

A great deal of money and talent has been invested to create scientific and technical capabilities that are crucially important for the Nation's security and economic

competitiveness. Realizing the full potential of the laboratories requires a much greater effort to tap their capabilities, especially in support of regional and national economic competitiveness. DOE and the laboratories must work to break down barriers to external collaboration with small and large businesses, academia, and other Federal agencies. Innovative technology transfer and commercialization mechanisms should continue to be pursued, and best practices in other sectors, including academia, should be examined. Congress and DOE should continue to support leading edge S&T user facilities, making sure to continue using scientific community input and peer review processes to determine future priorities for new and upgraded facilities.

Managing Effectiveness and Efficiency

The M&O contractors, in conjunction with DOE, must improve several areas of laboratory management: overhead costs, facilities and infrastructure, and project and program management. The Commission found laboratory overhead rates to be comparable to university-negotiated rates at the science and applied laboratories. The overhead rates at the National Nuclear Security Administration laboratories are understandably higher, due to the unique costs of their national security and nuclear weapons-focused mission. DOE should provide greater transparency into laboratory indirect costs and should publish an annual report of overhead rates for each laboratory.

DOE and the laboratories should continue efforts to improve laboratory facilities and infrastructure by halting the growth in deferred maintenance and speeding up the deactivation and decommissioning of excess facilities. Given the limited budget, DOE, the laboratories, Congress, and the Office of Management and Budget (OMB) should actively work together to agree upon the size and nature of the resources shortfall for facilities and infrastructure, and to develop a long-term plan to resolve it through a combination of increased funding, policy changes, and innovative financing approaches. Such approaches might include third-party financing, enhanced use leases, State funding, gifts, and leveraging partnerships with other Federal agencies.

To better its project management record, DOE and the laboratories should maintain focus on strengthening institutional capability and imposing greater discipline in implementing DOE project management guidance. The Commission also supports the recent Secretary of Energy Advisory Board Task Force recommendation to put more resources into S&T development for the Environmental Management program given the technical complexity of its projects that seriously challenge project performance.

Ensuring Lasting Change

A review of over 50 past reports shows a strikingly consistent pattern of criticism with a repeating set of recommendations for improvement. Despite the extensive examination of the issues, none of these reports has led to the comprehensive change necessary to address the well-documented, persistent challenges confronting the Department and its

laboratories. While the current Secretary of Energy has taken a number of steps to improve the relationship between DOE and its laboratories, and thereby the efficiency and effectiveness of the laboratories, these efforts must be institutionalized. A standing review body should be established to track implementation of the recommendations and actions in this report. This body should report regularly to DOE, the laboratories, the Administration, and Congress. Congress should also develop a more orderly and consistent process of reviewing the National Laboratories, in lieu of the past unrelenting pace of studies.

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The Commission wishes to acknowledge that the current Secretary of Energy and the current laboratory directors, and the management teams of both, have made much progress in improving the relationship between DOE and the laboratories. Rebuilding trust is a slow process that requires a sustained culture change that is underway. The Commission encourages future Secretaries and laboratory directors to continue these efforts and Congress and others to continue supporting them.

Today, DOE laboratories face a more complex set of challenges and have a more diverse array of missions than existed when the first National Laboratories were created more than a half-century ago. The recommendations in this report are intended to ensure that the laboratories are able to operate as efficiently and effectively as possible so that the Nation realizes the maximum benefit from this national asset in the years ahead.

Table 4. Responsible Actors for Each Recommendation and Cross-References to Volume 2

Volume 1 Chapter & Section Reference	Rec. No.	Recommended Action	Responsible Actor(s)	Volume 2 Chapter & Section Reference
2.C	1	The Administration and Congress should recognize the value of the National Laboratories and provide the necessary resources to maintain their capabilities and facilities. Congress should also develop a more orderly process of reviewing the laboratories.	Administration and Congress	4.E
3.A.1	2	Department of Energy (DOE) and the laboratories must work together to restore the ideal Federally Funded Research and Development Center (FFRDC) relationship as one of trust and accountability. DOE should delegate more authority and flexibility to the laboratories and hold them accountable. The laboratories must be more transparent with DOE about their activities.	DOE and Laboratories	2.C
3.A.1	3	DOE and each laboratory should jointly develop an annual operating plan with agreements on the nature and scope of the laboratory's activities, including goals and milestones. DOE should then provide increased flexibility and authority to the laboratory to implement that plan.	DOE and Laboratories	2.C
3.A.1	4	To improve DOE's ability to manage the laboratories, DOE should implement greater leadership and management development for its Federal workforce, including multi-directional rotational assignments.	DOE	2.C
3.A.1	5	DOE should separate the National Energy Technology Laboratory's (NETL) research and development (R&D) function from its program responsibilities. Consideration should be given to converting the new research NETL into an FFRDC/NETL should increase its interactions with universities.	DOE and Congress	2.C
3.A.2	6	DOE should abandon incentive award fees in favor of a fixed fee set at competitive rates with risk and necessary investment in mind. DOE should also adopt richer set of incentives to motivate sound management.	DOE	2.C
3.B.1	7	DOE should give the laboratories the authority to operate with more discretion whenever possible. For non-nuclear, non-high-hazard, unclassified activities, DOE should allow laboratories to use Federal, State, and national standards in place of DOE requirements. DOE should review and minimize approval processes.	DOE	3.G
3.B.1	8	DOE should modify its processes for developing directives, orders and other requirements to get more input on the benefits and impacts of the proposed requirements. When developing new requirements, DOE should use a risk-based model, ensuring the level of control over an activity is commensurate with the potential risk.	DOE	3.G
3.B.2	9	DOE should focus on making the use of Contractor Assurance System (CAS) more uniform across the laboratories. DOE local oversight should rely on information from the CAS systems, with appropriate validation, as much as possible for their local oversight. The quality of CAS can be increased through peer reviews for implementation and effectiveness.	DOE	4.D
3.B.2	10	The role of the site office should be emphasized as one of "mission support." The site office manager should be responsible for the performance of the site office; all staff, including the Contracting Officers, should report to the site office manager. DOE should devote more effort to professional development of field staff.	DOE	4.D
3.B.2	11	DOE should clarify the role and authority of the support centers. Where operational authority resides with a support center, DOE should remove it and reinstate it at the site office or DOE headquarters.	DOE	4.D

Volume 1 Chapter & Section Reference	Rec. No.	Recommended Action	Responsible Actor(s)	Volume 2 Chapter & Section Reference
3.B.3	12	All stakeholders should make maximum use of local assessments (performed by site offices and laboratories), with appropriate verification, to reduce duplicative assessments and burden on the laboratories.	DOE and External Auditors	5.C
3.B.3	13	DOE should establish a single point of contact within the Department for all laboratory directed data requests.	DOE	5.C
3.B.4	14	DOE should increase the size of funding increments by consolidating budget and reporting (B&R) codes, extending timelines and minimizing milestones for each funding increment and institutionalizing mechanisms to move money between B&R codes for related research areas.	DOE	6.D
3.B.4	15	Congress should repeal Section 301(d) of the FY 2014 Consolidated Appropriations Act as soon as feasible to remedy the transitional budget it creates for the Office of Management and Budget (OMB), DOE Headquarters, and the laboratories.	Congress	6.D
4.A	16	Other DOE program offices should adapt the processes that DOE's Office of Science has in place for guiding and assessing the alignment of the laboratories under its stewardship with DOE's missions and priorities.	DOE	7.E
4.B	17	The processes that Office of Science has in place for assessing the quality of the research being done by its laboratories and for assessing the quality of its research portfolio should be adapted by the other program offices.	DOE	7.E
4.B	18	There must be reconsideration of the travel restrictions to enable conference participation at levels appropriate to the professional needs of the existing scientific staff and to attract the highest quality staff in the future. The Commission is encouraged by DOE's recently revised guidance on conference-related activities and spending.	DOE and OMB	7.E
4.C	19	The Commission strongly endorses Laboratory Directed Research and Development (LDRD) programs, both now and in the future, and supports restoring the cap on LDRD to 6 percent unencumbered, or its equivalent. The Commission recognizes that, in practice, restoring the cap will have the largest impact on the LDRD programs of the National Nuclear Security Administration laboratories.	Congress	6.D
4.D	20	DOE should manage its laboratories as a system having an overarching strategic plan that gives the laboratories the flexibility to pursue new lines of inquiry. Once the research has sufficiently mature, DOE should provide strategic oversight and guidance to coordinate and potentially consolidate their programs.	DOE	7.E
4.D	21	Congress should recognize that the capabilities currently housed within the NNSA laboratories are essential to the Nation. Maintaining these capabilities in separate and independent facilities should continue.	Congress	7.E
5.A	22	DOE should establish techniques to make the Strategic Partnership Projects process more efficient.	DOE	9.E
5.A	23	DOE should support efforts to strengthen the Mission Executive Council.	DOE	9.E
5.B	24	DOE and its laboratories should continue to facilitate and encourage engagement with universities through collaborative research and vehicles such as joint faculty appointments and peer review.	DOE and Laboratories	10.C
5.C	25	DOE and the laboratories should fully embrace the technology transfer mission and continue improving the speed and effectiveness of collaborations with the private sector. Innovative transfer and commercialization mechanisms should be pursued and best practices in other sectors should be examined.	DOE and Laboratories	11.E

Volume 1 Chapter & Section Reference	Rec. No.	Recommended Action	Responsible Actor(s)	Volume 2 Chapter & Section Reference
5.C	25	DOE should determine whether the annual operating plans proposed by the Commission could qualify as the "agency-approved strategic plan" under the Stevenson-Wylder Technology Innovation Act of 1980, and the Fast-Track Cooperative Research and Development Agreement Program. If not, Congress should amend the law accordingly.	DOE and Congress	11.E
5.C	27	Laboratories should pursue innovation-based economic development by partnering with regional universities.	Laboratories, DOE Administration, and Congress	11.E
5.D	28	DOE and Congress should continue to support user facilities at the DOE laboratories. External advisory groups should continue to be used to decide which facilities to build and how to upgrade existing facilities.	DOE Administration, and Congress	12.C
6.A	29	DOE should continue implementing the Institutional Cost Report (ICR) as a method for tracking indirect costs across the laboratories, and encourage peer reviews to help mature the ICR as a tool for DOE, the laboratories, and other stakeholders.	DOE	13.E
6.A	30	DOE should provide greater transparency into laboratory indirect costs and publish an annual report of the overhead rates at each individual National Laboratory.	DOE	13.E
6.B	31	DOE should consider whether a capital budget will better serve its internal facilities and infrastructure budgeting and management needs.	DOE	14.D-14.12
6.B	32	DOE and the laboratories should continue efforts to improve facilities and infrastructure by halting the growth in deferred maintenance and speeding up the deactivation and decommissioning of excess facilities. DOE should work with Congress and OMB to agree upon the size and nature of the resources shortfall for facilities and infrastructure, and to develop a long-term plan to resolve it through a combination of increased funding, policy changes, and innovative financing.	DOE, Laboratories, Congress, and OMB	14.D
6.B	33	DOE, the laboratories, Congress, and OMB should actively work together to identify appropriate situations and methods for utilizing innovative financing approaches, such as third-party financing, enhanced use leases, and other methods, including State funding, gifts, and leveraging partnerships with other Federal agencies.	DOE, Laboratories, Congress, and OMB	14.D
6.C	34	DOE should maintain focus on increasing institutional capability and imposing greater discipline in implementing DOE project guidance, which is currently being incorporated into its DOE directive 413.3 B. There should be more peer reviews and "red teams" within DOE.	DOE	15.G
6.C	35	The Commission supports the recent Secretary of Energy Advisory Board Task Force recommendation to put more resources into science and technology development for the EM program given the technical complexity of its projects.	DOE Administration, and Congress	15.G
7.C	36	A standing body should be established to track implementation of the recommendations and actions in this report, and to report regularly to DOE, the laboratories, the Administration, and the Congress. This body could assist Congress in developing a rational plan for future evaluations of the DOE laboratories.	DOE Administration, and Congress	16.D

Summary of Written Public Comments

Part 1: Letters Concerning NETL

Email received from Kenny Purdue and Joshua Sword, AFL-CIO

Commission to Review the Effectiveness of the National Energy Laboratories

Re: Comments on the CRENEL Draft Final Report

On behalf of the 70,000 active members and the 70,000 retired members of the West Virginia AFL-CIO, please accept our comments below related to the CRENEL draft report.

The CRENEL report makes numerous sensible and logical recommendations that we agree with. However, the report is off-base in its recommendations for NETL (Recommendation #5), which appears to be the result of a lack of full understanding and recognition of NETL's Mission Space and Core Competencies.

NETL's Government-Owned Government-Operated (GO-GO) status allows it to conduct research that can serve as an independent, unbiased, comparative assessment of private-sector technology. As a federally staffed laboratory, NETL's workforce consists of government employees who serve first in the national interest, with no competing or conflicting bias from the private sector. Further, NETL is not viewed as a competitor by the private sector, which is then willing to work with the Laboratory by sharing information and collaborating and partnering to solve critical energy challenges.

As a GO-GO, NETL provides unbiased, science-based analyses and assessments of energy and environmental policy, legislation, and regulations. NETL is able to participate in the interagency review of proposed energy and environmental regulations that impact the U.S. energy sector. NETL can respond quickly to National crises, as evidenced by the well-recognized role NETL played in assisting on the Deepwater Horizon spill.

NETL has been extremely successful in developing and transferring important technologies to industry, consistently earning the prestigious R&D 100 Awards. NETL has received 41 R&D 100 awards since 2000. Nearly half of these awards have been given to NETL's Office of Research and Development as a result of research performed by NETL Federal researchers. This is an extremely successful record for these prestigious awards, particularly for a national laboratory of NETL's size. In fact, NETL has exceeded the DOE average for R&D 100 awards since the time of that awards' inception.

NETL is a GO-GO that excels in technology transfer. NETL has been very successful in the pursuit of Federal Laboratory Consortium (FLC) awards for Excellence in Technology Transfer. NETL has received 22 FLC awards since 2007 (eight National FLC and 14 Regional FLC awards).

These awards demonstrate the emphasis that NETL places on the movement of technology to industry. Since 2000, NETL has entered into over 300 technology transfer agreements with the private sector.

Additional NETL success stories are numerous, particularly in areas identified for improvement in the report. For instance, NETL multiplies the value of federal R&D dollars by attracting industry investment. Between 1978 and 2000, industry investment on NETL managed projects is estimated to have been between \$5 billion and \$9 billion. This represents 38 percent to 46 percent cost share on federal research. These numbers have significantly increased in the last 15 years.

NETL established a successful Regional University Partnership program. Program and project management is a core competency of the NETL, which directly leads to Technology commercialization and transitioning. This has been NETL's forte since its existence with examples including the development of technologies to address acid rain, mercury emissions, enhanced tight gas development, and many others.

Several mission critical functions of the National Laboratories, including those which are provided by NETL, are not evaluated by the report, such as: administration of Public/Private partnerships by experts at Laboratory sites; shepherding and managing large-scale demonstration projects and scale-ups (high-risk and large-scale projects require government involvement and management); and, developing a well-established federal procurement capability for National Laboratories.

Statements in the report such as "NETL is unique" and while there is "nothing inherently wrong with that [...] it does seem unusual" seem prejudicial. This, along with an assertion that NETL has not enjoyed "the flexibility and other benefits that come along with" being a GO-CO, appear to beg the assumption that the GO-CO model is superior in some way and are counterintuitive when compared to NETL's track record. The report never makes an attempt to justify such a bold assumption, however, and does not explore the value of the NETL model; further, this GO-GO model is NOT unique in other federal agencies.

So the report acknowledges that there is a unique need for certain functions, and acknowledges that NETL is unique, but instead of taking the simple path of suggesting the best performer of these roles continue in that fashion, instead suggests that DOE break apart NETL simply for being different from the other DOE National Laboratories.

It is for these reasons that we write to urge the Commission to reconsider Recommendation #5, especially the parts calling for "DOE to separate the NETL R&D function from its program responsibilities (and call the R&D portion – not the program activities - NETL)", and "Furthermore, consideration should be given to converting the new, research NETL into a government-owned, contractor-operated FFRDC."

Again, thank you for the opportunity to comment on this report. we urge you to reevaluate and reconsider recommendation #5, especially in light of NETL's outstanding history of performance in its' current operating model, and in recognition of NETL's many strengths and capabilities.

Sincerely yours,

Kenny Perdue
President, WV AFL-CIO

Joshua Sword
Secretary-Treasurer, WV AFL-CIO

Email received from Keith Collins, AFL-CIO

Commission to Review the Effectiveness of the National Energy Laboratories

Re: Comments on the CRENEL Draft Final Report

I write on behalf of the American Federation of Government Employees, AFL-CIO, Local 1104 representing the Federal employees at the US Department of Energy's National Energy Technology Laboratory, Albany, Oregon. I want to thank the Commission and the Department for the opportunity to comment on the draft report.

While making several sensible recommendations, the draft report's recommendation #5 shows a misunderstanding of NETL's Mission Space and Core Competencies. NETL's Government-Owned Government-Operated (GO-GO) status allows it to generate an independent, unbiased, comparative assessments of private-sector technology. As a federally-staffed laboratory, NETL's workforce consists of government employees who serve the national interest, without private sector conflicts and biases. Further, because the private sector does not see NETL as a competitor, the Laboratory can work with firms—sharing, collaborating, and partnering in order to solve critical energy challenges.

As a GO-GO, NETL can also provide unbiased, science-based analyses and assessments of energy and environmental policy, legislation, and regulations. The Laboratory also participates in the interagency review of proposed energy and environmental regulations that impact the U.S. energy sector. NETL can act quickly in a crisis, as evidenced by the well-recognized role the Laboratory played in responding to the Deepwater Horizon spill.

NETL has been extremely successful in developing and transferring important technologies to industry, earning more than 40 prestigious R&D 100 Awards just since 2000, which is an impressive haul considering the Laboratory's size. Nearly half of these awards have been given to NETL's Office of Research and Development in recognition of research performed by NETL's federal employee researchers. In fact, NETL has exceeded the DoE average for R&D 100 awards since the time of that awards' inception. Moreover, NETL is a GO-GO that excels in technology transfer. NETL has received 22 Federal Laboratory Consortium Awards for Excellence in Technology Transfer since 2007. And since 2000, NETL has entered into over 300 technology transfer agreements with the private sector.

Contrary to the impression conveyed by your report, NETL multiplies the value of federal R&D dollars by attracting industry investment. Between 1978 and 2000, industry investment on projects managed by NETL is estimated to have been between \$5 billion and \$9 billion, increasing significantly in the last 15 years, and which represents 38 percent to 46 percent cost share on federal research.

NETL has established a successful Regional University Partnership program. Program and project management is a core competency of the NETL, which directly leads to Technology commercialization and transitioning. Among the technologies developed pursuant to this program are those which mitigate against acid rain and mercury emissions and promote tight gas development.

The commission's draft report fails to recognize several mission critical functions performed by NETL, including the administration of public-private partnerships; management of large-scale demonstration projects and scale-ups (i.e., high-risk and large-scale projects require government involvement and management); and development of a well-established federal procurement capability for DoE laboratories.

Statements in the draft report such as "NETL is unique" and while there is "nothing inherently wrong with that [...] it does seem unusual" are at best meaningless and more likely indicative of a prejudice against federal civil servants. And then there's the assertion that NETL has not enjoyed "the flexibility and other benefits that come along with" being a GO-CO, which begs the assumption that the GO-CO model is somehow superior despite NETL's demonstrated strengths. The draft report never makes an attempt to justify such a questionable assumption, however, and, as discussed earlier doesn't understand the value of the NETL model or appreciate all of its accomplishments. Finally, it should be noted that NETL is not the only thriving and successful GO-GO in the federal government.

Given the strengths and accomplishments of NETL, it makes no sense to bust it up merely because it employs a different model from the GO-CO facilities. Therefore, I strongly urge the commission to reconsider Recommendation #5, especially the parts calling for "DOE to separate the NETL R&D function from its program responsibilities (and call the R&D portion – not the program activities - NETL)", and "Furthermore, consideration should be given to converting the new, research NETL into a government-owned, contractor-operated FFRDC."

Respectfully,

Keith Collins

President



STATE OF WEST VIRGINIA
OFFICE OF THE GOVERNOR
1900 KANAWHA BOULEVARD, EAST
CHARLESTON, WV 25305
(304) 558-2000

EARL RAY TOMBLIN
GOVERNOR

September 25, 2015

Karen Gibson, Designated Federal Officer
U.S. Department of Energy
1000 Independence Avenue SW
Washington D.C. 20585

RE: Comments of Commission to Review the Effectiveness of National Energy Laboratories
(CRENEL)

Dear Ms. Gibson:

I write you to express my concern over one of the recommendations contained in the CRENEL report regarding the effectiveness of the US Department of Energy's National Energy Technology Laboratory ("NETL") in Morgantown, West Virginia. Recommendation 5 states that "DOE should separate NETL's [research and development] function from its program responsibilities" and should consider "converting the new, research NETL into a government-owned contractor-operated FFRDC [federally funded research and development center]." I believe this change may adversely affect dedicated and valuable West Virginians and NETL's effectiveness here in the mountain state.

As stated above, please accept this letter as my formal request to reconsider Recommendation 5 which would enable NETL to continue its long successful history of researching, developing and transferring important technologies to industry and our nation.

Sincerely,

A handwritten signature in black ink that reads "Earl Ray Tomblin".

Earl Ray Tomblin
Governor



AMERICAN FEDERATION OF GOVERNMENT EMPLOYEES, AFL-CIO

J. David Cox, Sr.
National President

Eugene Hudson, Jr.
National Secretary-Treasurer

Augusta Y. Thomas
National Vice President for
Women and Fair Practices

00350557

September 25, 2015

Commission to Review the Effectiveness of the National Energy Laboratories (CRENEL)

CRENEL@hq.doe.gov

Re: Comments on the CRENEL Draft Report

Dear Commissioners,

On behalf of the American Federation of Government Employees, AFL-CIO, which represents more than 650,000 federal employees who serve the American people across the nation and around the world, including in the Department of Energy's (DoE) National Energy Technology Laboratory (NETL), I submit our views on behalf of AFGE Locals 1104 (in Albany, OR), 1916 (Pittsburgh, PA), and 1995 (Morgantown, WV), with regard to the draft report of the Commission to Review the Effectiveness of the National Energy Laboratories (CRENEL).

While making several sensible recommendations, the draft report's Recommendation #5 shows a misunderstanding of NETL's mission space and core competencies. NETL's Government-Owned Government-Operated (GO-GO) status allows it to generate independent, unbiased, comparative assessments of private-sector technology. As a federally-staffed laboratory, NETL's workforce consists of government employees who serve the national interest—without private sector conflicts and biases. Further, because the private sector does not see NETL as a competitor, the Laboratory can work with firms—sharing, collaborating, and partnering in order to solve critical energy challenges.

As a GO-GO, NETL can also provide unbiased, science-based analyses and assessments of energy and environmental policy, legislation, and regulations. The Laboratory also participates in the interagency review of proposed energy and environmental regulations that impact the U.S. energy sector. NETL can act quickly in a crisis, as evidenced by the well-recognized role the Laboratory played in responding to the Deepwater Horizon spill.

NETL has been extremely successful in developing and transferring important technologies to industry, earning more than 40 prestigious R&D 100 Awards just since 2000, which is an impressive haul considering the Laboratory's size. Nearly half of these awards have

been given to NETL's Office of Research and Development in recognition of research performed by the Laboratory's federal employee researchers. In fact, NETL has exceeded the DoE average for R&D 100 awards since the award's inception. Moreover, NETL is a GO-GO that excels in technology transfer. NETL has received 22 Federal Laboratory Consortium Awards for Excellence in Technology Transfer since 2007. And since 2000, NETL has entered into over 300 technology transfer agreements with the private sector.

Contrary to the misimpression conveyed by the draft report, NETL multiplies the value of federal R&D dollars by attracting industry investment. Between 1978 and 2000, industry investment on projects managed by NETL is estimated to have been between \$5 billion and \$9 billion, increasing significantly in the last 15 years.

NETL has also established a successful Regional University Partnership program. Program and project management is a core competency of the NETL, which directly leads to Technology commercialization and transitioning. Among the technologies developed pursuant to this program are those which mitigate against acid rain and mercury emissions and promote tight gas development.

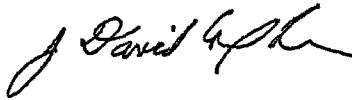
The draft report fails to recognize several mission critical functions performed by NETL, including the administration of public-private partnerships; management of large-scale demonstration projects and scale-ups (i.e., high-risk and large-scale projects require government involvement and management); and development of a well-established federal procurement capability for DoE laboratories.

Statements in the draft report such as "NETL is unique" and while there is "nothing inherently wrong with that [...] it does seem unusual" are at best meaningless and more likely indicative of a prejudice against federal civil servants. And then there's the assertion that NETL has not enjoyed "the flexibility and other benefits that come along with" being a GO-CO, which begs the assumption that the GO-CO model is somehow superior despite NETL's demonstrated strengths. The draft report never makes an attempt to justify such a questionable assumption, however, and, as discussed earlier the draft report doesn't understand the value of the NETL model or appreciate all of its accomplishments. Finally, it should be noted that NETL is not the only thriving and successful GO-GO in the federal government.

Given the strengths and accomplishments of NETL, it makes no sense to bust it up merely because it employs a different model from the GO-CO facilities. Therefore, I strongly urge the commission to reconsider Recommendation #5, especially the parts calling for "DoE to separate the NETL R&D function from its program responsibilities (and call the R&D portion – not the program activities - NETL)", and "Furthermore, consideration should be given to converting the new, research NETL into a government-owned, contractor-operated FFRDC."

A recommendation to convert NETL from GO-GO to GO-CO is nothing more than privatization, an option which has been repeatedly discredited. Privatization in this case is particularly egregious because the benefits discussed herein from NETL's promotion of the public interest and its coordination of various conflicting private interests would be lost if the Laboratory were to be stripped of its GO-GO status. AFGE will strongly oppose any effort to alter NETL's GO-GO status.

Sincerely,

A handwritten signature in black ink, appearing to read "J. David Cox, Sr.", with a stylized, cursive script.

J. David Cox, Sr.
AFGE National President

DAVID B. MCKINLEY, P.E.
1ST DISTRICT, WEST VIRGINIA
412 CANNON HOUSE OFFICE BUILDING
WASHINGTON, DC 20515
TEL: (202) 225-4172
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CONGRESSIONAL ARTHRITIS CAUCUS
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CONGRESSIONAL YOUTH CHALLENGE CAUCUS
CO-CHAIR,
HIGH PERFORMANCE BUILDINGS CAUCUS
CO-CHAIR,
CONGRESSIONAL HEARING HEALTH CAUCUS

**Congress of the United States
House of Representatives**

COMMITTEE ON
ENERGY AND COMMERCE
SUBCOMMITTEE ON
ENERGY AND POWER
SUBCOMMITTEE ON
ENVIRONMENT AND THE ECONOMY
SUBCOMMITTEE ON
OVERSIGHT AND INVESTIGATIONS
VICE CHAIR

September 23, 2015

Commission to Review the Effectiveness of the National Energy Laboratories
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585

Re: Comments on the CRENEL Draft Final Report

Dear Commission:

First, thank you to the U.S. Department of Energy (DOE) and the Commission to Review the Effectiveness of the National Energy Laboratories (CRENL) for its report on this important issue. The Commission's work is greatly appreciated.

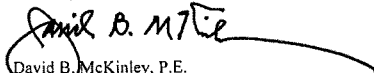
The draft CRENEL report makes several sensible recommendations. However, I am concerned with Recommendation #5, specifically as it relates to National Energy Technology Laboratory's (NETL) R&D program and operations. Recommendation #5 recommends that DOE separate NETL's R&D function from its program responsibilities and convert NETL into a government-owned, contractor-operated (GOCO) facility. I fear that this recommendation is the result of misguided assumptions and a lack of full understanding of NETL's core competencies and accomplishments.

The report seems to assert that GOCO model is more efficient than the government-owned, government-operated (GOGO) model found at NETL. But, the Commission never makes an attempt to justify this assertion and does not explore the value of the GOGO model. One major benefit of model is the directing and managing capabilities of large-scale demonstration projects. Often, it is difficult to partner with industry given the high-risk that may accompany a large-scale project. In this case, government involvement and management is necessary.

The Commission should review the numerous success stories and operations that can be found at NETL. This laboratory has received more R&D 100 Awards than the National Laboratory average. NETL was instrumental in assisting on Deepwater Horizon spill, established a successful Regional University program, and has established a federal procurement agency for National Laboratories, just to name a few.

Again, thank you for the opportunity to comment on this report. I hope that you will reevaluate Recommendation #5 accordingly and take into consideration the positives of NETL.

Sincerely,


David B. McKinley, P.E.
Member of Congress



Office of the Secretary of State
Building 1, Suite 157-K
1900 Kanawha Blvd., East
Charleston, West Virginia 25305

Natalie E. Tennant
Secretary of State
State of West Virginia

Telephone: (304) 558-6000
Toll Free: 1-866-SOS-VOTE
Fax: (304) 558-0900
www.wvsos.com

September 25, 2015

Commission to Review the Effectiveness of the National Energy Laboratories
1000 Independence Ave. SW
Washington DC 20585

Dear Commission:

The National Energy Technology Laboratory (NETL) should remain a government-owned, government-operated facility. NETL's work continues to provide our country with better energy options, improved safety in the energy sector and a stronger economy. Through NETL's research and collaboration it has been and will continue to be a leader in energy R&D. Particularly, as West Virginia continues as a key player in the energy sector, the work done at NETL is extremely important to our economy.

When visiting NETL's Morgantown facility I observed tremendous opportunity. The facility and personnel are ready to tackle the nation's most complex energy issues – those affecting us today and those that we'll see in the future. They just need the commitment of the Department of Energy to get it done.

NETL supports communities by providing thousands jobs for hundreds of employees, contractors and small businesses in West Virginia. Additionally, the award-winning facility works diligently with universities, which was a core recommendation. I agree that increasing the interactions and collaborations with universities will be beneficial to all. Accordingly, NETL has partnered with Northeast Energy, West Virginia University, and The Ohio State University to form the first field laboratory designed for the long-term study of unconventional resource development. This project is just the most current commitment NETL has made to the region and energy R&D.

I understand that NETL may need to make internal changes, but just because it is not like the other laboratories, there is not a need to change it from government-owned, government-operated

facility. If NETL's situation is changed it would be detrimental to many people and businesses in West Virginia.

Sincerely,

A handwritten signature in black ink, appearing to read "Natalie E. Tennant". The signature is fluid and cursive, with a large, stylized initial "N".

Natalie E. Tennant
West Virginia Secretary of State

Congress of the United States
Washington, DC 20510

September 25, 2015

Commission to Review the Effectiveness of the National Energy Laboratories

Re: Comments on the CRENEL Draft Final Report

Dear Commission:

We write regarding the Commission's report on the effectiveness of the US Department of Energy's National Energy Technology Laboratory in Morgantown, West Virginia. We want to thank the Commission and the Department for the opportunity to comment on the draft report.

While the CRENEL report makes many reasonable recommendations, it errs in its recommendations for NETL (Recommendation 5), which reflects a lack of appreciation of NETL's mission space and core competencies.

Recommendation 5: DOE should separate NETL's R&D function from its program responsibilities (and call the R&D portion—not the program activities—NETL). Furthermore, consideration should be given to converting the new, research NETL into a government-owned, contractor-operated FFRDC [federally funded research and development center]. Whether or not the above steps are taken, NETL should increase its interactions and collaboration with universities.

Considering NETL's many successes, including its successful Regional University Partnership Program, as well as the Secretary of Energy's assurances on this subject, it would be appropriate to withdraw this recommendation.

NETL's Government-Owned Government-Operated (GO-GO) status allows it to conduct research that can serve as an independent, unbiased, comparative assessment of private-sector technology. As a federally staffed laboratory, NETL's workforce consists of government employees who serve first in the national interest, with no competing or conflicting bias from the private sector. Further, NETL is not viewed as a competitor by the private sector, which is then willing to work with NETL by sharing information and collaborating and partnering to solve critical energy challenges.

As a GO-GO, NETL provides independent technical and economic analyses of energy and environmental policy, legislation, and regulations. NETL is able to participate in the interagency review of proposed energy and environmental regulations that impact the U.S. energy sector. NETL can respond quickly to national crises, as evidenced by the well-recognized role NETL played in assisting on the Deepwater Horizon spill.

NETL has been extremely successful in researching, developing and transferring important technologies to industry, consistently earning the prestigious R&D 100 Awards. NETL has received 41 R&D 100 awards since 2000. Nearly half of these awards have been given to NETL's Office of Research and Development as a result of research performed by NETL Federal researchers. NETL has exceeded the DOE average for R&D 100 awards since the time of that awards' inception.

NETL is a GO-GO that excels in technology transfer. NETL has been very successful in the pursuit of Federal Laboratory Consortium awards for Excellence in Technology Transfer. NETL has received 22 FLC awards since 2007 (eight National FLC and 14 Regional FLC awards). These awards demonstrate the emphasis that NETL places on the movement of technology to industry. Since 2000, NETL has entered into over 300 technology transfer agreements with the private sector.

Additional NETL success stories are numerous, particularly in areas identified for improvement in the report. For instance, NETL multiplies the value of federal R&D dollars by attracting industry investment. Between 1978 and 2000, industry investment on NETL managed projects is estimated to have been between \$5 billion and \$9 billion. This represents 38 percent to 46 percent cost share on federal research. These numbers will have significantly increased in last 15 years.

NETL established a successful Regional University Partnership Program. Program and Project management is a core competency of the NETL, which directly leads to Technology commercialization and transitioning. This has been NETL's forte since its existence, with examples including the development of technologies to address acid rain and mercury emissions, for tight gas development, and many others.

In his February 2015 Congressional testimony, involving the DOE budget, to both Senate and House committees, DOE Secretary Moniz responded emphatically to questions concerning the Commission's report, by indicating there was no intention of changing the organizational structure of NETL:

House Energy and Commerce Committee, February 11, 2015

"Look, NETL is our fossil fuel laboratory -- just no ifs, ands, or buts about it -- and has done very, very good work in the carbon capture sequestration arena, in methane hydrates, and in some of the hydraulic fracturing environmental impact work, et cetera, et cetera. So its future is -- we have a new director, of course, relatively new director. And I think she is doing -- she will do a great job, I think. First of all, you mentioned privatize. And I don't know what this commission -- this congressional commission will recommend. But certainly we have -- I have made it very, very clear -- we have no plans to change the organizational structure of NETL as the one of our 17 laboratories that is a -- that is a Federal organization."

Senate Energy and Natural Resources Committee, February 12, 2015

"In particular, as you implied, our laboratories are generally management and operating contracts. NETL is unique in being a Federal facility. And that reflects two points. One is that it does do, let's call it, laboratory-based research. But it also plays a major role in managing all the contracting for our fossil energy office and others. We have no intention of changing that arrangement."

Given the Secretary's comprehensive understanding of and responsibility for the national laboratory system and in recognition of the Secretary's confidence in the current organization, we urge the Commission to reconsider Recommendation 5. This would represent a highly-deserved modification, in light of NETL's outstanding history of performance, as portrayed above.

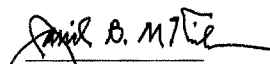
Sincerely,



Joe Manchin III
United States Senator



Shelley Moore Capito
United States Senator



David B. McKinley
United States Congressman



AMERICAN FEDERATION OF GOVERNMENT EMPLOYEES

LOCAL 1916

AFFILIATED WITH THE AFL-CIO

P.O. BOX 231
SOUTH PARK, PA 15129



September 24, 2015

Commission to Review the Effectiveness of the National Energy Laboratories

Re: Comments on the CRENEL Draft Final Report

I write on behalf of the American Federation of Government Employees, AFL-CIO, Local 1916 representing the Federal employees at the US Department of Energy's National Energy Technology Laboratory, Pittsburgh, Pennsylvania. I want to thank the Commission and the Department for the opportunity to comment on the draft report.

While making several sensible recommendations, the draft report's recommendation #5 shows a misunderstanding of NETL's Mission Space and Core Competencies. NETL's Government-Owned Government-Operated (GO-GO) status allows it to generate an independent, unbiased, comparative assessments of private-sector technology. As a federally-staffed laboratory, NETL's workforce consists of government employees who serve the national interest, without private sector conflicts and biases. Further, because the private sector does not see NETL as a competitor, the Laboratory can work with firms—sharing, collaborating, and partnering in order to solve critical energy challenges.

As a GO-GO, NETL can also provide unbiased, science-based analyses and assessments of energy and environmental policy, legislation, and regulations. The Laboratory also participates in the interagency review of proposed energy and environmental regulations that impact the U.S. energy sector. NETL can act quickly in a crisis, as evidenced by the well-recognized role the Laboratory played in responding to the Deepwater Horizon spill.

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NETL has established a successful Regional University Partnership program. Program and project management is a core competency of the NETL, which directly leads to Technology commercialization and transitioning. Among the technologies developed pursuant to this program are those which mitigate against acid rain and mercury emissions and promote tight gas development.

The commission's draft report fails to recognize several mission critical functions performed by NETL, including the administration of public-private partnerships; management of large-scale demonstration projects and scale-ups (i.e., high-risk and large-scale projects require government involvement and management); and development of a well-established federal procurement capability for DoE laboratories.

Statements in the draft report such as "NETL is unique" and while there is "nothing inherently wrong with that [...] it does seem unusual" are at best meaningless and more likely indicative of a prejudice against federal civil servants. And then there's the assertion that NETL has not enjoyed "the flexibility and other benefits that come along with" being a GO-CO, which begs the assumption that the GO-CO model is somehow superior despite NETL's demonstrated strengths. The draft report never makes an attempt to justify such a questionable assumption, however, and, as discussed earlier doesn't understand the value of the NETL model or appreciate all of its accomplishments. Finally, it should be noted that NETL is not the only thriving and successful GO-GO in the federal government.

Given the strengths and accomplishments of NETL, it makes no sense to bust it up merely because it employs a different model from the GO-CO facilities. Therefore, I strongly urge the commission to reconsider Recommendation #5, especially the parts calling for "DOE to separate the NETL R&D function from its program responsibilities (and call the R&D portion – not the program activities - NETL)", and "Furthermore, consideration should be given to converting the new, research NETL into a government-owned, contractor-operated FFRDC."

Respectfully,

Frances M. Wright
President



American Federation of Government Employees
Affiliated with the AFL-CIO

AFGE Local 1995
National Energy Technology Laboratory
P.O. Box 880
Morgantown, WV 26505

September 24, 2015

Commission to Review the Effectiveness of the National Energy Laboratories

Re: Comments on the CRENEL Draft Final Report

Dear Commission:

I write on behalf of the Federal Employees at the US Department of Energy's National Energy Technology Laboratory (NETL) in Morgantown, West Virginia. I want to thank the Commission and the Department for the opportunity to comment on the draft report.

The CRENEL report makes numerous sensible and logical recommendations that I agree with. However, the report is off-base in its recommendations for NETL (Recommendation #5), which appears to be the result of a lack of full understanding and recognition of NETL's Mission Space and Core Competencies.

NETL's Government-Owned Government-Operated (GO-GO) status allows it to conduct research that can serve as an independent, unbiased, comparative assessment of private-sector technology. As a federally staffed laboratory, NETL's workforce consists of government employees who serve first in the national interest, with no competing or conflicting bias from the private sector. Further, NETL is not viewed as a competitor by the private sector, which is then willing to work with the Laboratory by sharing information and collaborating and partnering to solve critical energy challenges.

As a GO-GO, NETL provides unbiased, science-based analyses and assessments of energy and environmental policy, legislation, and regulations. NETL is able to participate in the interagency review of proposed energy and environmental regulations that impact the U.S. energy sector. NETL can respond quickly to National crises, as evidenced by the well-recognized role NETL played in assisting on the Deepwater Horizon spill.

NETL has been extremely successful in developing and transferring important technologies to industry, consistently earning the prestigious R&D 100 Awards. NETL has received 41 R&D 100 awards since 2000. Nearly half of these awards have been given to NETL's Office of Research and Development as a result of research performed by NETL Federal researchers. This is an

extremely successful record for these prestigious awards, particularly for a national laboratory of NETL's size. In fact, NETL has exceeded the DOE average for R&D 100 awards since the time of that awards' inception.

NETL is a GO-GO that excels in technology transfer. NETL has been very successful in the pursuit of Federal Laboratory Consortium (FLC) awards for Excellence in Technology Transfer. NETL has received 22 FLC awards since 2007 (eight National FLC and 14 Regional FLC awards).

These awards demonstrate the emphasis that NETL places on the movement of technology to industry. Since 2000, NETL has entered into over 300 technology transfer agreements with the private sector.

Additional NETL success stories are numerous, particularly in areas identified for improvement in the report. For instance, NETL multiplies the value of federal R&D dollars by attracting industry investment. Between 1978 and 2000, industry investment on NETL managed projects is estimated to have been between \$5 billion and \$9 billion. This represents 38 percent to 46 percent cost share on federal research. These numbers have significantly increased in the last 15 years.

NETL established a successful Regional University Partnership program. Program and project management is a core competency of the NETL, which directly leads to Technology commercialization and transition. This has been NETL's forte since its existence with examples including the development of technologies to address acid rain, mercury emissions, enhanced tight gas development, and many others.

Several mission critical functions of the National Laboratories, including those which are provided by NETL, are not evaluated by the report, such as: administration of Public/Private partnerships by experts at Laboratory sites; shepherding and managing large-scale demonstration projects and scale-ups (high-risk and large-scale projects require government involvement and management); and, developing a well-established federal procurement capability for National Laboratories.

Statements in the report such as "NETL is unique" and while there is "nothing inherently wrong with that [...] it does seem unusual" seem prejudicial. This, along with an assertion that NETL has not enjoyed "the flexibility and other benefits that come along with" being a GO-CO, appear to beg the assumption that the GO-CO model is superior in some way and are counterintuitive when compared to NETL's track record. The report never makes an attempt to justify such a bold and unfounded assumption, however, and does not explore the value of the NETL model; further, this GO-GO model is NOT unique in other federal agencies.

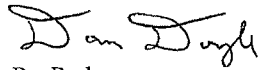
So the report acknowledges that there is a unique need for certain functions, and acknowledges that NETL is unique, but instead of taking the simple path of suggesting the best performer of these roles continue in that fashion, instead suggests that DOE break apart NETL simply for being different from the other DOE National Laboratories.

It is for these reasons that I write to urge the Commission to reconsider Recommendation #5, especially the parts calling for "DOE to separate the NETL R&D function from its program responsibilities (and

call the R&D portion -- not the program activities - NETL)", and "Furthermore, consideration should be given to converting the new, research NETL into a government-owned, contractor-operated FFRDC."

Again, thank you for the opportunity to comment on this report. I urge you to reevaluate and reconsider recommendation #5, especially in light of NETL's outstanding history of performance in its' current operating model, and in recognition of NETL's many strengths and capabilities.

Sincerely yours,

A handwritten signature in black ink, appearing to read "Dan Doyle". The signature is fluid and cursive, with the first name "Dan" and last name "Doyle" clearly distinguishable.

Dan Doyle
President, AFGE Local 1995

Part 2: Suggested Corrections from DOE Laboratories

Email received from Brenda Dingus, LANL

In Volume 1 on page 45, the figure caption states that the overhead rate is "calculated by dividing total direct costs by total indirect costs". Don't you mean the inverse, i.e. "calculated by dividing total indirect costs by total direct costs"? In other words, smaller numbers are better value not bigger.

Also, you give one standard deviation error bars. I think it would be useful to actually show the numbers for each institution. There aren't that many points to plot. There are only 3 NNSA labs and the standard deviation of those 3 is very large. Knowing the individual numbers would be very helpful in understanding that large deviation.

Brenda

Brenda Dingus / LANL Fellow

Email received from Reiner Friedel, LANL

Dear Sir,

I have read with alarm the section of the report dealing with the issue of laboratory costs compared to other institutions. (Section 6. Managing Effectiveness and Efficiency; A. Overhead)

The report's conclusion that

"Therefore, it can be said that National Laboratories are more expensive than universities, but not significantly, given organizational differences"

This is highly misleading (and wrong, see below) and is sending exactly the wrong message to the management of the national laboratories: "our costs structure is fine, we do not need to do anything".

There seems to be a factual error in the reasoning presented on p.44. The report states that

"universities include depreciation and interest expenses associated with facilities in their overhead, while DOE's laboratories do not."

The report estimates this at 14.5% of the university's overhead rates.

In addition, the report estimates that the "actual" admin costs at Universities are 5% higher than the OMB limit of 26% which are internally hidden.

Then the report argues that adding these costs to the University rates (57% + 14.5% + 5%) yields an "actual" rate of 76.5% which is indeed within 10% of the DOE lab rates.

HOWEVER: if the universities include depreciation and interest expenses and the DOE labs do not, then the estimated cost of this needs to be SUBTRACTED from the University rate to obtain a rate WITHOUT depreciation and interest that is then comparable to the DOE rate. Or put differently, if the DOE labs were to add depreciation and interest to their rates, then their overhead costs would be even bigger than the reported 85%.

THUS the university rate would become $57\% - 14.5\% + 5\% = 47.5$ which actually makes the comparison to the DOE rates worse. Instead of the direct overhead comparison, which makes DOE labs 1.49 times more expensive on overhead, the factor increases to 1.78.

I would also like to take exception in bringing into the comparison "intangibles" such as if organizations do or do not include "depreciation and interest" or if they "hide" some admin costs. This is immaterial to a sponsor who funds the research. The sponsor is interested in how much work does my dollar buy, nothing more.

In addition, comparing costs through overhead alone is misleading as it ignores the effect of fringe and benefit costs that are different at DOE labs compared to universities. A more realistic comparison would be to compare the salary of a full time employee doing research at a DOE lab v. a university, asking how much such an employee would "cost" a given sponsor. As program manager for the Lab's NASA and NSF programs I sit on many NASA and NSF review panels where I have the opportunity to compare the costs of research proposals across institutions.

At LANL, for a mid-level researcher, the multiplier from salary to cost to sponsor is ~3.2

For a range of top universities the multiplier is 1.8, 2.3, 2.1, 1.9, 1.9, an average of ~2.0

By the above measure the cost of doing research based on salary alone is 1.6 times higher at A DOE lab (LANL) compared to universities.

Respectfully

Reiner Friedel

Reiner Friedel

LANL Program Manager for NASA/NSF

Email received from Charles McMillan, LANL

Good Afternoon:

LANL offers the following comments on the DRAFT CRENEL Report:

Red Team (Volume 1, Page 36)

- The paragraph that begins on the bottom of page 36 of the draft report confuses red teams (which are LANL-internal teams) with independent assessment teams (which are LLNL teams). The current wording is incorrect. Suggested replacement for the paragraph that begins on the bottom of page 36 of the draft document *Final Report of the Commission to Review the Effectiveness of the National Energy Laboratories* dated 4 September 2015:

- In addition, the current annual assessment process, which is a central element of stockpile stewardship, has included the Independent Nuclear Weapons Assessment Process (INWAP) since 2010. INWAP employs assessment teams from one physics laboratory to independently develop and refine nuclear performance baselines for weapon types that are the responsibility of the other physics laboratory. The technical experts on these teams are uniquely qualified to conduct these assessments because they draw from the only organizations that have the computational and experimental capabilities necessary to conduct such technical evaluations and the personnel who possess the required security clearances. The results of these independent annual assessments are reported to the responsible laboratory Director, who uses them as one element of the overall annual assessment process to evaluate the certification basis of the weapon types for which the laboratory is responsible.

Editorial Change

- Volume 1, Page 29 – NE is Nuclear Energy, not Nuclear Engineering

Best,

Charlie

Charles F. McMillan

Laboratory Director

Los Alamos National Laboratory

Email received from Ryan Kilbury, PNNL

General Comments:

The draft report recommends that DOE and the National Laboratories develop annual operating plans. In light of the success demonstrated by the Office of Science's planning and performance management (PEMP) processes we do not see the value in adding another level of planning detail. Instead, we support the Commission's recommendation that the Office of Science's planning and performance management processes be adopted by the entire DOE.

In Volume 2 of the draft report, the Commission notes that PNNL receives only 20% of our funding from our steward, the Office of Science. The unstated implication is that, as a result, the Office of Science has proportionately less ability to influence the Laboratories strategic priorities. On the contrary, the comprehensive and interactive nature of the Office of Science's planning and performance management processes ensures that our institutional priorities are strategically aligned with those of the Office of

Science, and of DOE. In addition, PNNL has the ability to leverage a diverse set of funding sponsors which enables PNNL to have an increased impact on DOE and National priorities.

Page 11, A. Restoring the Partnership between DOE and its Laboratories

While the report discusses in great detail the “broken” relationship between DOE and their labs, our experience at PNNL differs. PNNL and PNNL continually are working towards our goal of “partnership”. Partnership in our view supports a PNNL-Contractor relationship promoting the achievement of mutually beneficial goals. It involves an agreement to work together supportively to achieve the Laboratory missions. That is the FFRDC model, the model in itself is not broken and does not need to be restored or modified. It needs to be embraced by both sides. DOE in an owner’s role and Contractor’s in the role of management and operations working for common objectives.

Page 12, 1st Paragraph:

The statement is made that, “DOE’s role is to provide direction, oversight and funding to the National Laboratories to carry out those programs. The Laboratories, as trusted partners, play active roles in supporting DOE in that process.” The Laboratory is the institution that is owned or controlled by DOE, and should not be confused with the contractor, who is managing and operating the Laboratory for DOE. This sentence should more appropriately read “DOE’s role, as owner of the Laboratory, is to provide direction, oversight and funding to the National Laboratory contractors to carry out those programs. The Laboratory contractors, as trusted partners, play active roles in supporting DOE in that process.” This same terminology should be used throughout the document.

Page 16, Recommendation 6 – Abandoning Incentive Award Fees:

Incentive Award Fees are an effective tool for contracts and do provide the necessary focus on important areas of mission outcomes and performance. Incentives need to be aligned to the desired outcomes and need to be appropriately implemented not eliminated.

Pgs. 16-17, Contract Requirements:

As the report points out there are layers of requirements in Government contracting, usually because there is a lot of room for interpretation of expectations and outcomes related to Laws and Federal Regulations. Reduction of requirements is not the answer, refinement of expectations is.

Pg. 17, Recommendation 7:

The statement is made that DOE should give the Laboratories and M&O contractors the authority to operate with more discretion whenever possible. Contractors clearly have the ability and authority to operate in accordance within the terms and conditions of the contract. Assuming contractors don’t have the authority to operate with discretion, is false.

Pg. 20, Recommendation 10:

The report mentions that “the role of the site office should be emphasized as one of “mission support”. This is incomplete and makes it sound like mission “trumps” everything and at all cost. As mentioned above in the comment for page 12, 1st paragraph, DOE and the individual site office role is to provide contract management, direction, oversight, and stewardship of the national asset that DOE owns.

Pg. 48, Recommendation 33:

The report specifies that OMB has not approved a third-party financed or alternatively financed lease since 2007. It is more accurate to say that DOE has not requested a review by OMB of any new third-party financed facilities or alternatively financed facilities as DOE has not proposed one since 2011 and it never made it to OMB for their review.

Ryan M. Kilbury

Pacific Northwest Site Office

Email received from Karin Brown, INL

CRENEL Team,

Stated below are comments provided by the Office of Nuclear Energy, Idaho Operations Office on factual inaccuracies after reviewing the "Final Report of the Commission to Review the Effectiveness of the National Energy Laboratories" document. Please contact Karin Brown, DOE Idaho Operations Office for any clarifications on the information provided or if you have additional questions.

Page	Volume	Paragraph	Comment
29	1	3, 2 nd sentence	Change "nuclear engineering" to nuclear energy
5	1 & 2	Table – referring to Idaho National Laboratory	In reference to the "Budget from DOE & Total Budget" columns environment management clean up at the Idaho National Laboratory (INL) is managed by a separate primary contract, INL Nuclear Energy mission is not responsible for clean up at the laboratory that would equate to \$387m less as stated in Congressional Budget tables
Throughout both volumes (per 48 CFR Part 970)	1 & 2		Change work for others (WFO) to Strategic Partnership Projects (SPP)
4	2	1	Change "nuclear engineering" to nuclear energy

Email received from Joe Arango, JLab

I would like to offer the following input to correct a factual inaccuracy in the CRENEL draft Final Report. In the section of the report discussing the requirements included in M&O contracts (Volume 2, Section 3.B.2, page 31), Table 5 shows 79 Directives in the M&O contract at the Thomas Jefferson National Accelerator Facility as of July 2015. That is not accurate in that there are only 52 Directives in the contract (Section J, Appendix E, List B, List of Applicable Directives) as of July 2015. As was discussed with the Commission members who visited the Laboratory during the review, the Site Office and Laboratory staff have put focused efforts into reducing the number of Directives requirements over the recent years and have made progress in reducing the number to the current 52. I appreciate your help in correcting this inaccuracy in the Final Report such that the data better reflects the results of these focused efforts.

Joe Arango

TJSO Manager

Email received from Hugh Montgomery, JLab

Sassanah et al,

I have read Volume 1: Executive Report

There appears to be an error on Page 6. In discussion of the LCLS project, Brookhaven is cited as a participant, and Argonne is not. As far as I know, Argonne is a participant, Brookhaven is not.

With Best Regards,

Hugh Montgomery

THE DRAFT FINAL REPORT--COMMISSION TO REVIEW THE
EFFECTIVENESS OF THE NATIONAL ENERGY
LABORATORIES: UNIVERSITY OF CALIFORNIA
COMMENTARY

The University of California (UC or University) commends the Commission on both the extensive evaluation process that was undertaken as well as the excellent recommendations put forth in the draft report. As the Management & Operating (M&O) Contractor of longest tenure within the Department of Energy/National Nuclear Security Administration (DOE/NNSA) complex, we continue to be committed to this important public service role and believe the engagement of major academic research institutions is vital to the long-term health and vitality of the national laboratories.

By way of background, the University of California is unique among not-for-profit government contractors. It is not only one of the largest of such contractors but also the contractor with the longest tenure, having pioneered the Management and Operating contract form -- more specifically, the concept of an academic institution as a not-for-profit contractor. The University has been involved with three major federal laboratories since their inception: the Lawrence Berkeley National Laboratory, the Lawrence Livermore National Laboratory, and the Los Alamos National Laboratory. This relationship with the federal government spans more than 70 years. The M&O contract form and the labs' operations as Federally Funded Research and Development Centers (FFRDCs) have been the critical means of interaction between the government and these laboratories. Its fundamental characteristics of partnership, scientific freedom, optimization of private-sector creativity and flexibility while also ensuring appropriate federal direction and oversight, and long-term relationships have been central to the extraordinary success achieved by the laboratories.

While we find much to commend in the Commission's report we offer the following observations on a limited subset of the Commission's recommendations.

Recommendation 2: Return to the spirit of the FFRDC model (stewardship, accountability, competition, and partnership). DOE and the National Laboratories must work together as partners to restore the ideal nature of the FFRDC relationship as a culture of trust and accountability. DOE should delegate more authority and flexibility to the laboratories on *how* to perform their R&D, and hold them fully accountable for their actions and results. For their part, to be trusted partners and advisors, the laboratories must be transparent with DOE about their planned activities ahead of time, as well as about their actions and results as they are carried out.

The University of California strongly endorses this recommendation and would propose that this is an essential necessary first step to accomplishing many of the other objectives discussed within the report. Indeed this could be taken as the overarching message of the report; degradation in this trust-based relationship is at the root of many of the issues and challenges facing the laboratories today. The Secretary has made good progress by engaging the national laboratory directors but there is much more to be done to develop a more effective, consistent institutional approach to laboratory stewardship across the DOE.

It is also important that this recommendation highlight the differences across the DOE. The Office of Science feels a strong sense of ownership for and shared fate with their laboratories. This has driven the development of a consistent approach to laboratory stewardship and engagement with their M&O contractors that is very effective. In the NNSA, there is the added complication of a mix of FFRDCs and production sites across the nuclear weapons enterprise (NWE) and the NNSA's efforts to establish a consistent approach to performance assessment across all of the sites. The laboratories as FFRDCs should be clearly differentiated from the production sites and subjected to a planning and evaluation process consistent with that used for the Office of Science laboratories. This process must be distinct from any NWE planning processes used to formulate the stockpile stewardship program and must include the long-term, strategic focus on the health and vitality of the Science, Technology & Engineering (ST&E) capabilities at the laboratories.

Recommendation 3: DOE and each laboratory should cooperatively develop a robust annual operating plan, with specific agreements on the nature and scope of activities at the laboratory, and milestones and goals that are jointly established. Within that framework, DOE should give greater flexibility and authority to the M&O contractor to implement that plan. This greater flexibility must go hand-in-hand with greater transparency and accountability from the laboratory to DOE.

We strongly concur with the need for a cooperative annual planning process and suggest that clear guidance on the proposed level of specificity would be beneficial. Such a plan should be created at a *strategic* level, with broad definition of scope, and contain a small number of high impact milestones and goals that are meaningful measures of performance. Ideally these would be part of a multi-year planning framework so that meaningful progress within a given year could be measured and rewarded rather than waiting for activities to come to completion.

Recommendation 6: DOE should abandon *incentive* award fees in favor of a fixed fee set at competitive rates with risk and necessary investment in mind. In addition, DOE should adopt a broader and richer set of incentives and consequences to motivate sound laboratory management and enforce accountability.

In general fees are available to M&O contractors in acknowledgement of the financial risks they were assuming, which have increased substantially over time. The introduction of a mix of fixed and performance-based incentive fee was viewed as a way to drive improved performance in areas of concern at the Labs. In practice, the fees serve strictly to motivate the M&O contractors, not the employees of the Lab for whom the fee represents a reduction in the amount of programmatic funding available to advance the mission.

The central element of the M&O partnership is the recognition that we, along with the Laboratory leadership team have a strong and shared interest in the success of the Laboratory. Ideally this relationship is based on a shared commitment to the long-term health of the Laboratory and works to ensure that all necessary actions are being undertaken to achieve this end. In part, the fees associated with M&O contracts acknowledge and compensate the contractor for the risks we are assuming, which have increased substantially over time. UC feels strongly that any income derived from our M&O contracts should be reinvested to enhance and strengthen the relationship between the University and the Laboratories and to best position the Laboratories to address emerging national security threats through excellent ST&E capabilities and workforce pipelines. As such, the University invests our residual fee income in campus-lab research projects designed to foster relationships between faculty and Lab researchers, introduce

students to the many capabilities of the Labs thereby promoting a talent pipeline, and enhance the ST&E capabilities at the Labs through collaboration with world-class researchers across the UC enterprise.

Today's fee structure detracts from this partnership model. A substantial portion of the fee is incentive fee, driven by short term, tactical objectives and disproportionately influenced by expectations for operational performance (vice ST&E and mission achievements). Even one adverse incident in operations can result in substantial impacts to both the evaluation and fee determination associated with ST&E and mission execution. This is extremely demoralizing to Laboratory staff and represents a substantial challenge to the University's effective participation as an M&O contractor.

In general terms a preferred arrangement would include: a fixed fee, longer award terms to ensure stability for the Labs and a sustained commitment by the University as the M&O, the DOE (including the Field Office and the Federal Program Leadership) and the Laboratory leadership team to the future of the Labs. This relationship based on trust and a shared commitment to success, rather than any fee or award term structure, is the critical element of a successful M&O contract.

In considering fee arrangements for national laboratory M&O contracts, it is important to distinguish between fees paid to commercial/industrial contractors for specific procurements and fees for the operation of FFRDCs. FFRDCs are required to operate in the public interest and must be isolated from shareholder interests. The criteria for earning fee should be structured with this in mind, thus avoiding the creation of conflicts with the public interest.

Recommendation 7: DOE should give the laboratories and M&O contractors the authority to operate with more discretion whenever possible. For non-nuclear, non-high-hazard, unclassified activities, DOE should allow laboratories to use Federal, State, and national standards in place of DOE requirements. DOE should review and minimize approval processes.

The University of California is unique among M&O contractors in managing classified, high-hazard activities at two of the nation's nuclear weapons and broader national security labs, while also managing unclassified, non-high-hazard R&D at one of the world's pre-eminent science labs. We understand in all of its many dimensions how different the operating envelopes of these two kinds of enterprises are. For that reason, we strongly support the Commission's Recommendation 7 to allow non-nuclear, non-high-hazard, unclassified activities to use existing Federal, State, and national standards in place of DOE requirements, wherever appropriate, and regardless of whether such activities are conducted at a science lab or a nuclear weapons/national security lab.

Recommendation 9: DOE should focus on making the use of CAS more uniform across the laboratories. DOE local overseers should rely on information from the CAS systems, with appropriate validation, as much as possible for their local oversight. The quality of CAS can be increased through peer reviews for implementation and effectiveness.

The University supports this recommendation. Currently, there is no coherent and uniformly accepted set of expectations for an appropriate CAS. When a CAS is accepted and implemented, there is often reluctance on the part of DOE to rely on such system, resulting in inefficient redundancies associated with the "checker checking the checker."

Recommendation 10: The role of the site office should be emphasized as one of “mission support” to the program offices at DOE and to the laboratories. The site office manager should be clearly responsible for the performance of the site office in support of the mission, and all staff in the site office, including the Contracting Officers, should report to the site office manager. Since site office effectiveness is so dependent on site office leadership, DOE should devote more effort to leadership training and professional development of field staff.

The University fully concurs. Contracting Officers frequently are not answerable to their respective site offices, and the reporting relationships of the Contracting Officers are variable throughout the Department. Aligning site office functions, including Contracting Officers, under the site office manager would benefit mission execution and promote uniformity within the Department.

Recommendation 16: Other DOE program offices should adapt to their contexts the procedures and processes that DOE’s Office of Science has in place for guiding and assessing the alignment of the laboratories under its stewardship with DOE’s missions and priorities.

We strongly agree that the Office of Science approach to laboratory stewardship has much to commend it, in particular their strong sense of ownership and shared fate with their laboratories. However, it is important to note that it is not the *processes* that make the system effective but rather their embrace of the role of the FFRDCs in the execution of their missions that makes the Office of Science model an exemplar. Absent that commitment to the trusted partnership between the government and its FFRDCs it is unlikely that any process will result in a more favorable outcome than present.

Recommendation 19: The Commission strongly endorses LDRD programs, both now and into the future, and supports restoring the cap on LDRD to 6 percent unburdened, or its equivalent. The Commission recognizes that in practice restoring the higher cap will likely only impact the LDRD programs of the NNSA laboratories.

We strongly concur with this recommendation and the endorsement of the strategic importance of LDRD to the laboratories. It is mentioned in the report text that LDRD plays a different role in the NNSA laboratories, where their funding is strongly dominated by mission-focused research and development, than in the Office of Science laboratories, where basic research is the focus. This important distinction would have more impact if it were highlighted within the recommendation itself rather than as part of the supporting commentary.

Recommendation 20: DOE should manage the National Laboratories as a system having an overarching strategic plan that gives the laboratories the flexibility to pursue new lines of inquiry, so long as the research aligns with mission priorities. Once the research has matured to the point that a preferred or most promising approach can be identified, the Department should provide strategic oversight and guidance, including expert peer review, for the laboratory system to coordinate and potentially consolidate their programs to achieve the most effective and efficient use of resources.

We strongly concur with the recommendation for the DOE to create an overarching strategy

for the national laboratories as a system. The system as it is currently constructed already has incentives in place to foster collaboration across the sites and to stimulate competition in areas where the technical and/or programmatic risks are high and a preferred approach has not emerged. While this can be strengthened, too much focus on eliminating perceived duplicative effort could be extremely detrimental to the health and vitality of the laboratories. Intellectual competition is the cornerstone of scientific excellence. Furthermore, it is often the case that research that appears duplicative at a high level is quite different when viewed up close. The DOE and all of its laboratories should strive for effective and efficient use of resources but a small sacrifice in efficiency may provide a marked increase in flexibility and creativity within the system. Tightly constrained budgets and the accompanying program scrutiny and review processes are already decreasing the laboratories' ability to invest in highly speculative research, which does not come with a guarantee of success or clear program milestones. Enhancing the incentives within the system to drive consolidation could unintentionally amplify this trend.

Recommendation 21: Congress should recognize that the technical capabilities currently housed within the NNSA laboratories are essential to the Nation. Maintaining the nuclear explosive package capabilities in separate and independent facilities has proven effective and should continue, thereby providing senior decision makers the highest possible level of confidence in the country's nuclear weapons stockpile.

We strongly concur with this recommendation. The University of California has helped to steward LLNL and LANL as they, in partnership with Sandia National Laboratories, have successfully sustained the U.S. nuclear deterrent over more than 7 decades. The system of independent design laboratories and intense peer review has served the nation extremely well and served to identify and resolve a host of highly complex technical challenges that could have impacted U.S. national security. It is also essential to acknowledge that sustaining those technical capabilities requires the same kind of stewardship and investment in the ST&E foundations of the laboratories that the other DOE laboratories require and that they should be treated as full partners in the community of national laboratories within the DOE.

Recommendation 22: DOE should establish policies and procedures to make the Work for Others (WFO) process more efficient, especially for work that is consistent with the annual operating plans, such as institutionalizing ongoing efforts to streamline the contracting process through more consistent use of umbrella WFO agreements and oversight mechanisms dedicated to shortening the timeline of the approval process; encouraging greater use of personnel exchanges and "customer relationship managers"; and creating a central point of contact in DOE headquarters to field questions from WFO customers about where specific capabilities lie within the laboratory system.

Recommendation 23: DOE should support efforts to strengthen the Mission Executive Council.

We agree that efforts should be undertaken to streamline the WFO process within the DOE, particularly enhanced and consistent use of umbrella agreements. We also believe it is important that WFO partners continue to foster relationships with the individual laboratories where they sponsor work and DOE not seek to take ownership of this process. Consistent with earlier recommendations to provide the laboratories with more flexibility it is important that they are given the latitude to develop appropriate WFO activities to enhance their technical capabilities, develop staff and to support important needs of agencies across the government in their role as FFRDCs. Creating a central DOE point of contact without clear expectations about the relationship to the individual laboratories could create unintended confusion for other agencies and diminish the laboratories ability to manage these relationships effectively.

On the other hand, a strengthened Mission Executive Council could provide much of this function by educating other agencies about the capabilities of the laboratories and developing strategic focus areas that could be pursued in a multi-agency, multi-laboratory approach. It also can provide effective interagency coordination, a shared view of the value of the FFRDCs across the government and identify opportunities for co-investment and/or advocacy by other agencies to help ensure the vitality and effectiveness of the laboratories. This approach avoids creation of (or perception of) a DOE ‘broker’ for WFO but enables the process to be better understood and potentially more strategic.

Recommendation 24: DOE and its laboratories should continue to facilitate and encourage engagement with universities through collaborative research and vehicles such as joint faculty appointments and peer review.

The University agrees. Science and technology (S&T) excellence is the defining quality for the three UC-affiliated DOE Laboratories. The University uses fee earned from its participation in governance of the labs to support collaborative research activities.

Rigorous and on-going applications of independent peer reviews ensure that S&T remain the core strength at the Laboratories. UC has applied the principles of peer review across both the S&T and operations areas to maximize the Labs’ ability to impact the complex missions across the national security space. UC faculty scientists contribute to the quality of peer reviews by participating as members of the Labs’ capabilities review committees and the S&T oversight committees for the M&O parent organizations. Joint faculty appointments are also an important element at the UC-affiliated labs. The total number of joint UC faculty appointments for the three Labs is around 260.

Recommendation 33: DOE, the laboratories, Congress and OMB should actively work together to identify appropriate situations and methods for utilizing innovative financing approaches, such as third-party financing, enhanced use leases, and other methods, including State funding, gifts, and leveraging partnerships with other Federal agencies.

The University agrees with this recommendation and recommends its strengthening. The University owns much of the real property at the Berkeley Lab, and it has been free of many of the restrictions (e.g., DOE Orders) that impede or constrain contractor capital investments at other labs. Accordingly, the University has been able to invest in capital improvements in ways that other labs cannot, and this investment has greatly benefited both DOE the Berkeley Lab. Current rules dis-incentivize contractor and third-party capital investment. The rules/restrictions frequently are premised on the desire for “near-zero risk” and fail to consider the long-term viability and mission of the laboratory complex. In light of the current budget environment and long-term capital investment needs of the laboratories, the University advocates the strengthening of this recommendation by calling on the parties to reconsider and reevaluate the rules and restrictions (and their underlying assumptions) associated with alternative financing for capital improvements at the laboratories.

Recommendation 36: A standing body should be established to track implementation of the recommendations and actions in this report, and to report regularly to DOE, the laboratories, the Administration, and the Congress on progress, results, and needed corrective actions. The standing body could assist Congressional committees in developing a rational plan for future evaluations of the DOE laboratories.

The University concurs. The make-up of this standing body is crucial, and should include representatives of relevant stakeholder communities, including the M&O contractors, to ensure that a broad variety of perspectives on actions and their results are solicited.

Booz | Allen | Hamilton

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McLean, VA 22102

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www.boozallen.com

September 25, 2015
Via Electronic Mail

Commission to Review the Effectiveness of the National Energy Laboratories
1000 Independence Avenue, SW
Washington, DC 20585

Attn: CRENEL@hq.doe.gov

Subject: Booz Allen Hamilton Response to DOE's request for comment on the Draft Final Report -
Commission to Review the Effectiveness of the National Energy Laboratories (CRENEL)

Reference: Draft Final Report – CRENEL

Dear Commission Members and Staff,

Booz Allen Hamilton is pleased to submit comments to the Draft Final Report - CRENEL; we applaud the Commission's effort and believe the report is both comprehensive and thought-provoking. Booz Allen welcomes the opportunity to further discuss any of our suggestions in greater detail.

Questions may be addressed to Mr. Gary Rahl at Redacted or to me at Redacted.

Sincerely,



BOOZ ALLEN HAMILTON INC.

Richard J. Goffi
Vice President

Enclosure

**Comments on Commission to Review the Effectiveness of the National Energy Laboratories
Draft Report**

Booz Allen thanks the Commission for requesting comments on this draft review of the effectiveness of the national energy laboratories. The Commission should be commended for such a thorough output. While we agree with many of the recommendations, we have some additional considerations for the Commission on their analysis of the role and nature of the M&O contractor and how to incentivize performance and stewardship of these national assets.

Mixed messages on the role of the M&O contractor: The Commission should consider acknowledging the subtle differences between the M&O contractor and the laboratory, as an entity in of itself. It is clearly stated that the laboratory should be viewed as a partner, trusted advisor and disinterested party; however, there are mixed messages in this report as to the role of the M&O contractor. As the Commission suggests, these two entities are intertwined; however, they are not inextricably linked. This message should be made stronger. For example, in Volume 2, page 17, the Commission suggests in an ideal state: “The laboratory is answerable only to the government customer” and while that may be true for the laboratory alone, it is definitely not the case for the M&O contractor, as suggested with the Commission’s use of the term “FFRDC/M&O” in that same paragraph. The M&O contractor, as a separately organized entity, is ideally answerable to its customers, partners, shareholders and the public at large (through the local, state and federal government). The Commission should consider plainly describing these differences and the relationship between the laboratory and its M&O contractor, along with ensuring the terms laboratory, M&O contractor and FFRDC are not used interchangeably throughout the report.

The Nature of the M&O contractor: In our experience as an M&O contractor and analysis of existing and previous M&O contracts, the DOE has created an apparent dichotomy between the laboratory management and their M&O corporate parent(s). The contracts have been structured to ensure great laboratory management but do little in the way to involve the parent organization(s). Laboratory management, while extremely important to the day-to-day operation and strategic direction of the laboratory, should not be solely accountable as the M&O contractor. It is unclear in this report if the Commission sees value in the parent organization outside of taking on the risks and liabilities of the laboratory. In reality, the parent organization can drive improvement in the asset and ensure high performance across the enterprise; but only if this involvement is valued. The Commission should ensure that their report reflects this important role by calling on both the laboratory management and their respective parent organizations to aid in the improvement of the laboratory system.

Comments on Incentive Fees: The incentives structure is a key mechanism for contractually aligning the government and its partner. It seems that the Commission agrees that a misaligned fee structure can cause the M&O contractors to be viewed as “absentee landlords” – receiving what is seen as high fees, for what amounts to little involvement. While a fixed fee only model has merits, particularly for single-program laboratories that require little to no parent organization, Booz Allen would like to offer an alternative model that aligns with the public interest and equates the return on the government’s investment with the involvement, as well as the risk, taken by the corporate parent. DOE officials have stated that facilities should be managed in alignment with their mission needs, along with the understanding that the contractor manages risks appropriately. As shown by previous incidents, however, tying risk to fee does not necessarily preclude risky scenarios from occurring. To help avoid future safety/security failures, safe and secure operations could be considered a baseline for the existence of a contract, and the risk level of the operations could be held in check by award term

extensions rather than fee. If the government would like to still reward high performance within the laboratory, the NNSA could build a performance fee used solely within the laboratory operations (e.g., employee incentives, additional internal research and development). This set of incentives aligns the interests of the public with laboratory performance as a singular entity. The government can then use incentives for the corporate parent to align across the enterprise and in the national arena – with fees tied to strategic initiatives and high priority deliverables. Tying fee to the corporate parent’s involvement and performance would attract competition, compensate for risk taken by the corporate parent, and offset unallowable costs.

The Commission should consider modifying Recommendation 6 to read:

“DOE should abandon incentive award fees that detract from the alignment between the DOE and M&O contractor. A fixed fee set at competitive rates with risk and necessary investment in mind should be considered for single-program laboratories that require little to no parent organization. In addition, DOE should adopt a broader and richer set of incentives and consequences to motivate sound laboratory management and accountability, along with corporate parent involvement in the enterprise-wide laboratory system.”

**Commission to Review the Effectiveness of the National Energy Laboratories
Draft Final Report Public Comments by
Pacific Northwest National Laboratory
September 24, 2015**

Section I – General Comments

1. Throughout the draft report statements are made implying that trust is uniformly broken between DOE and the National Laboratories. Our observation, and experience at PNNL, is that the trust between DOE and the National Laboratories stewarded by the Office of Science is strong.
2. The draft report recommends that DOE and the National Laboratories develop annual operating plans. In light of the success demonstrated by the Office of Science's planning and performance management (PEMP) processes we do not see the value in adding another level of planning detail. Instead, we support the Commission's recommendation that the Office of Science's planning and performance management processes be adopted by the entire DOE.
3. In Volume 2 of the draft report, the Commission notes that PNNL receives only 20% of our funding from our steward, the Office of Science. The unstated implication is that, as a result, the Office of Science has proportionately less ability to influence our strategic priorities. On the contrary, the comprehensive and interactive nature of the Office of Science's planning and performance management processes ensures that our institutional priorities are strategically aligned with those of the Office of Science, and of DOE. In addition, our ability to leverage a diverse set of funding sponsors enables us to have an increased impact on DOE and National priorities.
4. In Chapter 5 – Findings and Recommendations, the Commission recommends that the National Laboratories track the laboratory level of effort for all assessments. In light of our recent experience doing this at the request of the SEAB, we do not believe that the effort it takes to do this returns commensurate value to the institution. Instead, we believe that it is better to utilize the risk-based approach to assessments as articulated in our Contractor Assurance System.
5. We agree with the Commission's recommendation (#19) that LDRD be unburdened, but disagree that the impact will be limited to the NNSA laboratories. Unburdening LDRD will allow either increased investment or a lowering of rates at all of the National Laboratories.

Section II – Factual Corrections

1. On page 98 (Volume 2); third paragraph down, the report references PNNL's "Timekeeping and Travel and Property M&O Program." This is really two M&O Programs: Timekeeping and Travel; and Property. Because of the content of this paragraph applies only to the Property M&O program, reference to the Timekeeping and Travel Program should be removed.

2. The same reference is made in the second paragraph of page 99 (Volume 2), and in the first paragraph of page 101 (Volume 2), and again, reference to the Timekeeping and Travel Program should be removed.
3. The same reference is made in the figure caption for Figure 18 (Volume 2). Because the details of Figure 18 refer to both programs the caption should be changed to reflect the fact that these are two separate programs.
4. On page 157 (Volume 2), Footnote 210 should be modified to include PNNL among those labs participating in the multi-lab Grid Consortium. In fact, as noted in the text, PNNL is co-leading that Consortium with NREL.

**RESULTS OF SAVANNAH RIVER NATIONAL LABORATORY (SRNL) TECHNICAL ACCURACY REVIEW OF
DRAFT FINAL REPORT OF
THE COMMITTEE TO REVIEW THE EFFECTIVENESS OF NATIONAL ENERGY LABORATORIES (CRENEL)
September 2015**

VOLUME/PAGE	TABLE/FIGURE	CHANGE
Volume 1, page 5	Table 1	SRNL Budget from DOE (FY 2014) is \$204M (rather than \$15M) SRNL Total Budget (FY 2014) should be \$231M (rather than \$215M)
Volume 2, page 4	Table 1	SRNL Budget from DOE (FY 2014) is \$204M (rather than \$15M) SRNL Total Budget (FY 2014) should be \$231M (rather than \$215M)
Volume 2, page 31	Table 5	Number of Contract Clauses for SRNL should be <ul style="list-style-type: none"> • H-Clauses: 66 (rather than 62) • I-Clauses: 63 (rather than 25) • DEAR: 38 (rather than 33) • Directives: 90+ (rather than 40)
Volume 2, page 46, 51, 55, and other pages throughout report		The term Work for Others (WFO) has been replaced by Strategic Partnerships Program (SPP).
Volume 2, page 181	Figure 31	SRNL WFO as a Percentage of Average Total Budgets FY 2009–FY 2013 should be 15.76% (rather than ~<3%)
Volume 2, page 195	Table 31	Mechanisms for Technology Transfer should include for EM technology deployment by a contractor as direct pathway
Volume 2, page E-12	Figure 59	SRNL budgets from DOE in this figure should be FY04: \$122M (rather than \$373.4M) FY05: \$120M (rather than \$67.4M) FY06: \$123M (rather than \$73.0M) FY07: \$133M (rather than \$105.4M) FY08: \$140M (rather than \$83.7M) FY09: \$154M (rather than \$607.3M) FY10: \$164M (rather than \$76.4M) FY11: \$140M (rather than \$73.9M) FY12: \$138M (rather than \$5.1M) FY13: \$184M (rather than \$19.1M) FY14: \$204M (rather than \$14.2M)
Volume 2, page F-1		SRNL Budget from DOE (FY 2014) should be \$204M (rather than \$14M) and the Available Fee as % of DOE Budget is 2.33%

Email received from NREL

Volume 1

Accuracy Comments:

Page	Paragraph	Comment
11	1	"stewarding industrial or university partner" - statement does not recognize that some labs are stewarded by non-profit research organizations.
22	Last	The sentence referencing Fig. 4 – should substitute the word "a" for the word "the" as this represents the perspective of one lab
23	Table	The table is not well explained to clarify what the column headers mean
24	Last	...EERE policy decreased the number of milestones per project to one per quarter... This is not accurate. Prior to FY14, we had fewer than one milestone per quarter. The implementation of one per quarter greatly increased the number per program. EERE is working to remedy this by moving to larger projects and by parsing the types of milestones to be "progress milestones" versus "outcome milestones". This is still a work in progress, but the overall number of milestones that needs to be tracked continues to be the same.

Accuracy Comments

Volume 2		
180	Footnote 239	The DoD investment was not just energy efficiency work, it was also renewables and microgrids
226	Table 35	Shows no leased space for NREL. This is not correct
E-8		List of core capabilities needs to be corrected. ESI is listed twice. We should be consistent with the eight in our 5 Year Plan.

Part 3: Suggested Corrections from DOE Headquarters

Email received from Rick Hass, IG

Thanks for your work on this effort. The report provides a number of meaningful observations/recommendations that could help improve the effectiveness of the National Energy Laboratories.

My comments relate primarily to the numerous references in the report to "audits" performed by various entities. While a variety of entities (Headquarters staff/program offices, field/site offices, etc.) perform program/compliance reviews, the Office of Inspector General is the organization primarily responsible for performing audits within the Department. Readers may be confused when efforts that are actually program reviews are referred to as "audits."

I also noted a passage on page iv where some clarification is necessary. The statement, "DOE should also utilize a risk-based model with meaningful stakeholder engagement when developing new requirements and conducting audits," could lead one to conclude that the Office of Inspector General does not use such an approach when planning and conducting audits. As we described to the Commission members that visited us, we employ an extensive risk-modeling/ranking process for planning and conducting audits. We also continually seek to avoid duplication of work performed by both external and internal oversight organizations.

Thanks for your consideration of these comments.

Rick Hass
Deputy IG for Audits and Inspections

Warren, Jermaine M (CONTR)

From: Van Dyke, Henry
Sent: Wednesday, September 23, 2015 1:06 PM
To: Dinardo, Katherine (CONTR); Felton, Niquie (CONTR); Gerbsman, Jason; Megary, Sue; NA-50 Correspondence; Perry, Rhanika (CONTR); Rhoads, Patrick; McLaurin, Jasmine (CONTR); Lee, Yolanda
Cc: Cole, Frances; Tullis, Cathy; Mccuen, Anna; Barnes, Doreen
Subject: RE: NAES Collaboration: IDRMS 2015-02289 - Request for Concurrence: Technical Comments Requested on the Draft Final Lab Commission Report

NNSA GC has no legal comments but offers the following edit:

P.5, footnote.

"Budget from DOE from Budget from DOE figures are from the DOE FY 2016 Budget Justification"

Sent with Good (www.good.com)

-----Original Message-----

From: Dinardo, Katherine (CONTR)
Sent: Friday, September 11, 2015 08:45 AM Eastern Standard Time
To: Felton, Niquie (CONTR); Gerbsman, Jason; Megary, Sue; NA-50 Correspondence; Perry, Rhanika (CONTR); Rhoads, Patrick; McLaurin, Jasmine (CONTR); Lee, Yolanda; Van Dyke, Henry
Cc: Cole, Frances; Tullis, Cathy; Mccuen, Anna; Barnes, Doreen
Subject: NAES Collaboration: IDRMS 2015-02289 - Request for Concurrence: Technical Comments Requested on the Draft Final Lab Commission Report

<<HQ-#539502-v1-DOE_Lab_Commission_Volume_2_DRAFT.PDF>>
 <<HQ-#539501-v1-DOE_Lab_Commission_Volume_1_DRAFT.PDF>>
 <<HQ-#539504-v1-Incoming_9_10.MSG>>

The attached item is being sent to NA-10, NA-50, NA-EA & NA-GC for review, concurrence and to recommend collaboration by NA-1.

It is the responsibility of all program offices to let NAES know exactly who concurred either through a forwarded email, attached concurrence, copying the concurring officer on the email or letting NAES know that the concurrence is in IDRMS.

It is due to NAES COB 9/17/2015. Please reply all to this email on your acceptance of this collaboration and with your concurrence response.

- Pages 250 to 279 should be read in their entirety to ensure we all have the same baseline for moving forward.
- Page 268-269:

UPF will be located at NNSA's Y-12 National Security Complex to ~~store and process enriched uranium in a single centralized area~~ currently performed in a 70 year old facility. This will support the nuclear weapons program, nuclear nonproliferation and provide uranium as feedstock for fuel for naval reactors. The UPF cost estimates have escalated: at CD-0, the cost range was \$600 million to \$1.1 billion; at CD-1, the range estimate was ~~\$4.1~~ 4.2 billion to \$6.4 6.5 billion.³⁶⁰

While UPF is not located at a laboratory, NNSA ~~tasked a group of laboratory staff members to~~ chartered a review of the project's cost, schedule, and scope challenges led by the ~~QMKL~~ ^{ORNL} manager, and made up of subject matter experts from across the DOE complex. In its final report, ~~the laboratory~~ "Red Team" agreed with the project team's proposal that ~~concluded that~~ the facility did not have to be a single big box facility but rather could be a series of smaller, segregated facilities designed and constructed to meet individual safety and security criteria.³⁶¹ The "Red Team" affirmed the project team's plan to ~~recommended~~ minimizing the nuclear footprint, building non-nuclear buildings where appropriate, and using existing infrastructure at Y-12. The report concludes that the cost of the new approach will be at the high end of the CD-1 cost range—\$6.4-6.5 billion. NNSA plans to continue to refine the final project cost and schedule baseline following 90-percent completion of the design.

-----Original Message-----

From: Dinardo, Katherine (CONTR)
 Sent: Friday, September 11, 2015 11:16 AM
 To: Dickenson, Howard; Dunne, Claire; Fresco, Laura (CONTR); Gil, Jose (CONTR)
 Cc: Cole, Frances; Tullis, Cathy; Burris, Maryhelen (CONTR); Viars, Joy (NNSA)
 Subject: FW: NAES Collaboration: IDRMS 2015-02289 - Request for Concurrence: Technical Comments Requested on the Draft Final Lab Commission Report
 Importance: High

NA-APM & NA-MB/Dickenson are being added for concurrence.

-----Original Message-----

From: Dinardo, Katherine (CONTR)
 Sent: Friday, September 11, 2015 8:45 AM
 To: Felton, Nique (CONTR); Gerbsman, Jason; Megary, Sue; NA-50 Correspondence; Perry, Rhanika (CONTR); Rhoads, Patrick; McLaurin, Jasmine (CONTR); Lee, Yolanda; Van Dyke, Henry
 Cc: Cole, Frances; Tullis, Cathy; Mccuen, Anna; Barnes, Doreen
 Subject: NAES Collaboration: IDRMS 2015-02289 - Request for Concurrence: Technical Comments Requested on the Draft Final Lab Commission Report
 Importance: High

The attached item is being sent to NA-10, NA-50, NA-EA & NA-GC for review, concurrence and to recommend collaboration by NA-1.

It is the responsibility of all program offices to let NAES know exactly who concurred either through a forwarded email, attached concurrence, copying the concurring officer on the email or letting NAES know that the concurrence is in IDRMS.

OFFICE OF MANAGEMENT – TECHNICAL COMMENTS ON DRAFT CRENEL REPORT

CHAPTER 3 – CONTRACT REQUIREMENTS

1. Page 66 -- The Director of the Office of Management (MA-1), as Chair of the DRB, has the authority to recommend cancellation of directives and/or their requirements. However, MA-1 cannot unilaterally cancel requirements.
2. Page 66 -- Technical Standards are not requirements unless they are invoked in an Order. At that time, invoked technical standards are reviewed for applicability.
3. Page 66 -- Requirements and guidance are already clearly separated within the Directives System. Separation between mandatory requirements and non-mandatory guidance may be needed outside of the Directives system. If a technical standard is invoked, it becomes a mandatory requirement and is reviewed as such. Contractor Requirements Documents include all relevant contractor requirements.

CHAPTER 9 – DIVERSE SUPPORT OF OTHER AGENCIES

1. DOE issued regulations changing the name of “Work for Others” to “Strategic Partnership Projects.” All references to “Work for Others” (WFO) should be changed to “Strategic Partnership Projects” (SPP).

CHAPTER 14 – FACILITIES AND INFRASTRUCTURE

1. Volume 1, Section 6.B, 4th paragraph, page 47 & Volume 2, section 14.B.1.a, paragraph 2, page 234 – While all laboratories have deferred maintenance, three laboratories (out of the 17) hold approximately 64% (\$1.4B) of the deferred maintenance (\$2.2B). Of the three, one laboratory accounts for 29% (\$608K) of the deferred maintenance balance.
2. Volume 1, page 51, Table 10 - Please include under "Source: Data provided by DOE from the Facilities Information Management System (FIMS) database, FY 2014 Snapshot." This will provide consistency with Table 35 in Volume 2 and data repeatability in the future, if necessary.
3. Volume 2, Section 14.A.1, page 225 - The quantities will need to be updated. Page 46 of Volume 1 will also need to be updated. See Comment 4 below for additional information.
4. Volume 2, Section 14.A.1, page 225 - As presented, Table 35 does not include information on condition. It indicates the amount of maintenance and repairs that have been deferred.
5. Volume 2, Table 35, page 226 - It appears the table in the report was based on preliminary data and not the finalized data. For convenience and to ensure the correct information is

used, we have included the finalized table and updated it to include the following footnotes for ORNL and SRNL, respectively:

- Land assets for the Oak Ridge National Laboratory (ORNL) are managed by the Oak Ridge Office and are not specifically assigned to ORNL.
 - The Savannah River National Laboratory (SRNL) is located at the Savannah River Site (SRS). The SRS is comprised of almost 198,000 acres (approximately 310 square miles) of DOE Owned land and supports facilities assigned not only to the SRNL but also other DOE Program Offices. While the Site maintains a single land record in FIMS, approximately 35 acres is managed by the SRNL contractor.
6. Volume 2, Section 14.A.3, page 228, 1st paragraph, 3rd sentence – “Institutional Plant Projects” should be “Institutional General Plant Projects”.
 7. Volume 2, Section 14.A.3, page 228, 1st paragraph, 4th sentence – “...maintenance or light renovation of existing facilities.” Should be “maintenance, renovation of existing facilities, or construction of new facilities.” To ignore new construction would be inaccurate.
 8. Volume 2, Section 14.A.3, page 228, 2nd paragraph – The paragraph leaves the reader with the impression that RTBF, SLI, FIRP and RAMP are or were line item type funding programs. Suggest restructuring the paragraph.
 9. Volume 2, Section 14.A.3, page 228, 3rd paragraph – The sentence “...the Federal government does not use a capital budget...” appears to be contradicted by the later statement “... capital projects are segregated in a capital budget and depreciation on Federal capital assets is reported in the regular budget”
 10. Volume 2, Section 14.A.4, page 232, 2nd paragraph – NNSA did not modify DOE O 430.1B. They simply expanded their reporting time period by an additional 15 years to cover a planning period of Twenty-Five Years. NNSA’s requirements were in addition to but not in lieu of the requirements of DOE O 430.1B.
 11. Volume 2, Section 14.B.1.b, page 234, 1st paragraph, 2nd sentence – The natural conclusion of the facilities life cycle is Disposition. The D&D referenced in the paragraph is done in order to dispose of the asset via demolition, sale, transfer, etc. Often, if the asset is contaminated (particularly process contaminated), the end state of the D&D process will be demolition.
 12. Volume 2, Section 14.B.1.b, Figure 39 – The Facilities Information Management System (FIMS), the Department’s official real property database, does not support the information provided in Figure 39. The presentation referenced by the table provides forecast values not current, actual values. Since all assets will become excess at some point in the future, use of this chart as currently presented without timelines, reference to projections, etc. is misleading. For DOE official real property data, data sourced from FIMS should be used.

According to FIMS, FY 2014 snapshot:

- ANL has 0 Square Feet (SF)
- ORNL has 226,028 SF
- BNL has 47,011 SF
- LBNL has 55,756 SF

13. Since this is meant to be a public document, recommend consistency in how laboratories are referenced throughout the document. An example is Jefferson Lab. The following are some examples of terms are used to refer to Jefferson Lab in the two volumes JLab, Thomas Jefferson, Thomas Jefferson National Accelerator Facility, and TJNL. Other sites have similar issues but not as drastic - example ANL and Argonne.

Email received from EERE

Volume 2

Page 5. "DOE is unique among Federal agencies in how it funds research. Rather than focusing solely on proposals driven by a single principal investigator, the Department also funds both large-scale multidisciplinary research and large expensive facilities that universities and industry are unable or unwilling to invest in."

Multidisciplinary research projects and large expensive facilities are not the exclusive domain of DOE. NSF established the SynBERC consortium in 2006, a > \$16M multidisciplinary project involving genetics, protein folding, computational biology and regulatory scientists from several universities that focused on discovery-based advancements for synthetic and systems biology. NIST labs, among other federal laboratories, also boast of relatively large and expensive facilities and instrumentation that are world-class for material sciences, among other disciplines. The statement as written is not inaccurate, but may overstate the uniqueness of R&D models that DOE employs. Rather, the resources and emphasis that DOE commits for implementing these models as an overall percentage of total R&D expenditures to these collaborative research models and facilities have few peers among U.S. federal R&D agency outside of Defense.

Page 52. "Figure 12. Work for Others Approval Process".

DOE adopted the Strategic Partnerships Program (or SPP) that renamed Work for Others (WFO) agreements through a DOE Order issued last November. The report should consistently use that nomenclature. Also, in the figure, the orange box labeled "Agreement is signed and approved by lab Technology Transfer Office" approval step positioned near the bottom right hand corner of the process flow diagram appears to be duplicated erroneously.

Page 129. "For example, several laboratories noted that the Office of Science does a fairly good job of embedding some flexibility within their WBS; conversely, DOE's Office of Energy Efficiency and Renewable Energy (EERE) was mentioned as having the tightest controls on its funding and a more restrictive WBS, thereby requiring more compliance-related transactions within each B&R code."

The EERE budget atomization phenomenon mentioned by the Commissioner is in part due to Congressional control differences at the approved budget level. Specific guidance on spending levels is occasionally prescribed within budget Conference Reports at the B&R codes for EERE Programs. In at least one instance in the past decade an EERE Program Office was asked by auditors to provide evidence of adherence to Conference Report spending, down to the dollar. The WBS system implemented by EERE may or may not align with B&R codes and act primarily as a portfolio tracking tool and technology classification system. By itself WBS does not cause inflexibility on lab funding and B&R code alignment.



**National Nuclear Security
Administration
Comments on the Final
Report of the
Congressional Advisory
Panel on the Governance of
the Nuclear Security
Enterprise**

**Report to Congress
May 2015**

**National Nuclear Security Administration
United States Department of Energy
Washington, DC 20585**

Administrator's Letter of Transmittal

This report provides the National Nuclear Security Administration's (NNSA) response to the Report of the Congressional Advisory Panel on the Governance of the Nuclear Security Enterprise, as required by Section 3134 of the National Defense Authorization Act for Fiscal Year 2015. My comments, as Under Secretary for Nuclear Security and Administrator, NNSA, have been coordinated with the Secretary of Energy.


NNSA continues to make improvements in the leadership and management of its unique roles and responsibilities within the larger nuclear security enterprise; consequently we are pleased that much of the work that we have already undertaken and the changes that we are making are supported by the findings of this report. We know that we have additional work to do, and we are committed to making the NNSA a highly effective and continuously improving organization. This report highlights actions NNSA and the Department of Energy (DOE) have implemented or are currently underway, and addresses those recommendations of the Congressional Advisory Panel that we plan to pursue.

Pursuant to statutory requirements, this report is being provided to the following Members of Congress:

- **The Honorable John McCain**
Chairman, Senate Committee on Armed Services
- **The Honorable Jack Reed**
Ranking Member, Senate Committee on Armed Services
- **The Honorable Mac Thornberry**
Chairman, House Committee on Armed Services
- **The Honorable Adam Smith**
Ranking Member, House Committee on Armed Services
- **The Honorable Thad Cochran**
Chairman, Senate Committee on Appropriations
- **The Honorable Barbara A. Mikulski**
Ranking Member, Senate Committee on Appropriations
- **The Honorable Harold Rogers**
Chairman, House Committee on Appropriations
- **The Honorable Nita M. Lowey**
Ranking Member, House Committee on Appropriation

If you have any questions or need additional information, please contact me or Mr. Clarence Bishop, Associate Administrator for External Affairs, at (202) 586-7332.

Sincerely,

A handwritten signature in black ink, appearing to read "Frank G. Klotz". The signature is fluid and cursive, with the first name "Frank" and last name "Klotz" being the most prominent parts.

Frank G. Klotz
Under Secretary for Nuclear Security
Administrator, NNSA

Message from the Secretary

The programmatic success of the Department of Energy (DOE) and its National Nuclear Security Administration (NNSA) in sustaining the nuclear deterrent for over two decades without testing, in reducing the nuclear danger by securing or eliminating a very large amount of weapons-usable nuclear materials, in providing nuclear propulsion for a Navy with global reach, and in carrying out critical nuclear analysis and counterintelligence for the Administration at large must be preserved and extended. To do so requires addressing governance issues that could compromise continued success in the coming decades or elevate costs in doing so. The task of evaluating these issues, which have been present since the establishment of NNSA fifteen years ago, and of recommending solutions was given to the Congressional Advisory Panel on the Governance of the Nuclear Security Enterprise, commonly referred to as the Augustine-Mies panel. The Augustine-Mies report to Congress provides a welcome perspective on the state of nuclear security governance and the key steps needed from the Administration and the Congress for improvement of governance for the long term.

The quality and collective experience of the Augustine-Mies panel members are to be applauded. They and their staff did a very thorough job of fact finding and objective analysis. In that vein, their conclusions and recommendations deserve the full attention and appropriate response from both the Administration/DOE/NNSA and from the Congress. This message represents the initial response from the Secretary of Energy and the NNSA Administrator/Under Secretary for Nuclear Security.

To help frame the response, I charged the Secretary of Energy Advisory Board (SEAB) to present their observations on the panel report. The SEAB letter report (at Attachment), led by the Honorable Brent Scowcroft as chair of the SEAB Nuclear Security Subcommittee, strongly endorses the key Augustine-Mies findings and recommendations, thereby lending even further support to the Augustine-Mies conclusions from distinguished contributors to our nation's security over a long time.

The overarching conclusions of the Augustine-Mies panel are the need to "strengthen national leadership focus, direction and follow-through" with respect to the nuclear mission and "to solidify Cabinet Secretary ownership of the mission." Let me state clearly that as Secretary, I place the highest priority on "ownership" of the nuclear security mission, and spend a significant portion of my time and energies advancing its key goals. Further, in building the DOE/NNSA leadership team that includes Deputy Secretary Sherwood-Randall, Administrator Klotz, and Principal Deputy Administrator Crendon, the President has clearly appointed a group well versed and deeply engaged in nuclear security science, technology, management and policy. In my time as Secretary, I have seen how mission ownership has materially impacted NNSA directions and resources in support of key mission responsibilities. The appointment of Secretary Carter at the Department of Defense has further strengthened the Administration's nuclear security team.

A major conclusion of the panel was that, after evaluating several governance models, “the solution is not to seek a higher degree of autonomy for NNSA, because that approach would only further isolate the enterprise from needed Cabinet Secretary leadership. Instead it is recommended that Congress place the responsibility and accountability for the mission squarely on the shoulders of a qualified Secretary, supported by a strong enterprise Director with unquestioned authority to execute nuclear enterprise missions consistent with the Secretary’s policy direction.” We emphatically concur and would add to this that rebuilding national leadership focus on nuclear security will also require strengthening regular communications between the Secretary and the relevant Congressional leaders on the various policy elements that make up the nuclear security mission. As part of this, we propose to carry out the SEAB recommendation for a regular semi-annual report and briefing to Congress on progress in carrying out Augustine-Mies recommendations and updates on both progress and challenges in executing the mission continuously over short, intermediate and long time frames. The Deputy Secretary and the NNSA Administrator will lead the group that monitors our progress. The group will seek input enterprise wide and also from those outside DOE, such as the members of the Augustine-Mies and SEAB panels.

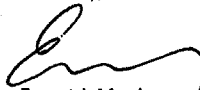
The panel goes on to offer important findings and recommendations about management practices. The panel states that “A major overhaul will be needed to transform the organization into one with a mission-driven management culture,” with “strong program managers focused on mission deliverables” and “clear accountability.” The panel observes that “an arm’s length, customer-to-contractor and, occasionally, adversarial relationship” has become too common and that a rebuilding of the trust that is a critical element of an FFRDC relationship is needed. I believe the panel is correct in these findings. When I became Secretary, I committed to restoring a more strategic relationship with the laboratory directors (not just NNSA) and I believe that we have made progress in this direction. This has been helped with some new institutional structures but even more, in my opinion, by more open communications about how the Department should pursue its multiple missions. This has benefitted both the Department and the laboratories, which of course is the objective of the FFRDC relationship.

I believe that various specific approaches to management processes are beginning to pay dividends, some of which are indicated in the Administrator’s accompanying report. However, notwithstanding some progress, there is a long path to follow to reach the management goals laid out by the panel. The report included an apt Peter Drucker quote at the beginning of Chapter 3: “Culture eats strategy for breakfast.” Culture change is not easy, and we do need such a change to restore primary focus on collaborative mission accomplishment throughout the system, with mission support in its very important role of helping that accomplishment take place safely, securely and efficiently. This applies both to labs and to other nuclear sites. Culture change requires strong trusted relationships advancing sound risk management understood by all levels of the organization. This will take some time, and certainly any progress that we make over the next couple of years needs to have roots deep enough to cross different management styles and managers. Our DOE enterprise-wide team will continue to work hard to set the right directions.

The final major set of recommendations involved strengthening “customer collaboration ... and a shared view of mission success.” This refers principally to the DoD-DOE relationship with regard to the deterrent. Here again there are examples of progress, such as a better functioning Nuclear Weapons Council, but there are also specifics on which we clearly need to improve, such as streamlining how work is done for other national security agencies (DoD, Intelligence, DHS), even though the report does note considerable satisfaction as to how many capabilities and services are provided by the DOE laboratories and sites. However, there is an important point here on which I disagree with the panel. The report consistently refers to a “customer” relationship between DoD and DOE. This framing of the relationship is actually at the root of some tension. The two agencies have synergistic responsibilities for supporting our country’s nuclear defense posture and the President and Congress ultimately have responsibility for allocating resources for maintaining our national security. Furthermore the nuclear security mission is broader than deterrence, including the nonproliferation, naval propulsion, intelligence and environmental cleanup missions that reside with DOE. None of this excuses either DoD or DOE from carrying out its responsibilities in the most cost effective fashion, but the framework for discussion should be optimization of our national security needs among several agencies with complementary capabilities. DoD is not our customer, and we are not a vendor; together we bear the serious responsibility to deliver a safe, secure and effective deterrent for the American people.

The accompanying report from Administrator Klotz provides more detailed responses to the Augustine-Mies recommendations. I repeat that we are very appreciative of the panel’s work and of its thoughtful findings and recommendations. The panel lays out a challenging agenda, and we welcome it as an important contribution to assuring our country’s nuclear security for the long term. We look forward to working with the Congress and with other stakeholders on implementation.

Sincerely,



Ernest J. Moniz
Secretary of Energy

Executive Summary

This report provides the Department of Energy (DOE)/National Nuclear Security Administration's (NNSA) comments with respect to the November 2014 Report of the Congressional Advisory Panel on the Governance of the Nuclear Security Enterprise, *A New Foundation for the Nuclear Enterprise*, as required by Section 3134 of the National Defense Authorization Act for Fiscal Year 2015.

The Department of Energy (DOE) and the NNSA express their deep appreciation to the members and staff of the Congressional Advisory Panel for their service and for their exceptional contribution to our national security in rendering their comprehensive and insightful report.

DOE and NNSA have carefully reviewed the report's findings, conclusions and recommendations. We are pleased that the report recognizes many of the successes that the DOE and the NNSA have achieved as we carry out our important and enduring nuclear security missions, including conducting a science-based Stockpile Stewardship Program to annually certify the safety, security and effectiveness of American nuclear arsenal without nuclear explosive testing for over 20 years.

We also believe that the report correctly identifies and accurately describes the leadership, management, and cultural challenges that confront the nuclear security enterprise. To address these issues, the report makes 19 primary recommendations and 63 sub-recommendations to improve performance, efficiency and accountability--both now and in the future. Most of these can be implemented under the existing authorities of the Secretary of Energy and the NNSA Administrator. As described in detail in the pages that follow, DOE and NNSA have in fact already taken a number of actions that fully align with the panel's recommendations. Additional steps can and will be undertaken, informed by the work of the Congressional Advisory Panel, as well as other ongoing reviews. .

NNSA is committed to working with the Administration, Congress, our partners and other stakeholders to address the challenges and recommendations identified by the Congressional Advisory Panel in a comprehensive, forthright and transparent manner. Our highly talented NNSA team, comprised of our federal workforce and our Management and Operating (M&O) and other contractor partners, is committed to continuous improvement and achieving excellence in all that we do. Above all, NNSA remains dedicated to carrying out our nuclear and other national security missions, while being mindful of our obligation to continuously improve our business practices, to develop our people, and to be responsible stewards of the resources Congress and the American people have entrusted to us.



National Nuclear Security Administration Comments on the Final Report of the Congressional Advisory Panel on the Governance of the Nuclear Security Enterprise

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I. Legislative Requirement

SEC. 3134. COMMENTS OF ADMINISTRATOR FOR NUCLEAR SECURITY AND CHAIRMAN OF NUCLEAR WEAPONS COUNCIL ON FINAL REPORT OF CONGRESSIONAL ADVISORY PANEL ON THE GOVERNANCE OF THE NUCLEAR SECURITY ENTERPRISE.

Not later than 90 days after the date of the enactment of this Act, the Administrator for Nuclear Security and the Chairman of the Nuclear Weapons Council (established by section 179 of title 10, United States Code) shall each submit to the congressional defense committees the comments of the Administrator or the Chairman, as the case may be, with respect to the findings, conclusions, and recommendations included in the final report of the Congressional Advisory Panel on the Governance of the Nuclear Security Enterprise under section 3166(d)(2) of the National Defense Authorization Act for Fiscal Year 2013 (Public Law 112-239; 126 Stat. 2209), as amended by section 3142 of the National Defense Authorization Act for Fiscal Year 2014 (Public Law 113-66; 127 Stat. 1069).

II. Introduction

The DOE and the NNSA thank the Congressional Advisory Panel on the Governance of the Nuclear Security Enterprise for its in-depth analysis of the nuclear security enterprise, with particular emphasis on the weapons program. We are pleased that the panel recognized some of the considerable successes that the DOE/NNSA have achieved as we carry out our important and enduring nuclear security and deterrence mission. The final report makes 19 primary recommendations for consideration by the Administration, the DOE, the NNSA and the Congress. We believe that these recommendations fall into three general categories: (1) recommendations that could be implemented within the existing authorities of the Secretary of Energy and the NNSA Administrator and would not require legislative action; (2) recommendations that apply to the Congress or are otherwise not in the control of the Department of Energy; and (3) recommendations that would require legislation to implement. My comments will focus primarily on the first category. As will be explained below, many of these recommendations have already been implemented, or are in the process of being implemented, by DOE/NNSA.

In May of 2013, immediately after being sworn in, Secretary of Energy Ernest Moniz provided the leadership, guidance and support the Department and the NNSA needed to address and resolve many of the systemic problems that the panel recognized in its final report. Since that time, we have begun to implement many of the panel's key recommendations, particularly those associated with organizational and management structures; cost estimation; and program, project and construction management. Many of these actions have already demonstrated tangible results, while others will take more time to implement fully.

The panel's report identifies a number of leadership and cultural challenges confronting the Department and the NNSA, many of which are well known and long-standing, but have proven difficult to resolve. These include identifying the correct incentive structure for the management and operating contractors (M&Os), as well as establishing the right level and focus of oversight to meet legal requirements and the expectations of our many stakeholders, including the American people. Other issues, such as inadequate funding for aging infrastructure, have lingered for over 20 years and will require the cooperation and attention of both Congress and the Executive branch to resolve.

We have closely reviewed the 19 primary recommendations, as well as the 63 sub-recommendations, and look forward to working within the Department of Energy and with the Congress, the executive branch, and our stakeholders as we work to improve NNSA's capabilities to meet its full national security mission set for years to come. The challenges before us are significant; but working with the extraordinary people of the NNSA, including the federal workforce and our M&O partners, we commit to address them in a comprehensive, forthright, and open manner.

Background

Although only in existence since 1977, the DOE/NNSA traces its lineage to the Manhattan Project effort to develop the atomic bomb during World War II and to the many energy-related programs that previously had been dispersed throughout various Federal agencies. When the Department was formed, it brought together organizations from the Departments of Agriculture, Commerce, Interior, Housing and Urban Development, and Transportation, and absorbed the Federal Energy Administration and the Energy Research and Development Administration -- organizations with different cultures, and with different missions.

The end of the Cold War saw a paradigm shift in the weapons research, development and production mission of the DOE, a new awareness of the environmental contamination and waste generated during the Cold War, and a growing and evolving imperative to prevent, counter, and respond to nuclear proliferation at all levels. These changes have resulted in what the panel describes as competing priorities in the role of the nuclear enterprise.

The priority for nuclear weapons during the Cold War was, as the panel described, the cycle of "design, test, and build." Since the United States voluntarily adopted a moratorium on nuclear explosive testing in 1992, the focus has shifted to science-based stockpile stewardship to support surveillance, sustainment, life extensions, and weapons dismantlement. No new weapons have been built or tested.

Threats have also changed in those 20-plus years as radiological and weapons-usable material, technology, and expertise became more pervasive. As a result, the need to focus on controlling special nuclear material, and preventing, countering and responding to a range of nuclear and radiological threats has increased.

These mission sets, along with the need to ensure the next generation of nuclear reactors to support the Navy's surface ships and submarines, are the core missions of the NNSA. We recognize that while there are various views and opinions as to what should take priority among these mission sets, our goal at NNSA is to execute all three in order to meet well-established national security goals and policies.

The broad yet interdependent missions, and the capabilities that underpin them, were the driving factors that led to the creation of the NNSA in the National Defense Authorization Act for Fiscal Year 2000. Preserving and enhancing these capabilities, and the importance of maintaining the stockpile and the Naval reactors, while addressing the range of global nuclear security challenges, was made clear in NNSA's statutorily mandated missions. The NNSA was designed to develop a focus on these missions, free from what were perceived at the time as the competing demands for attention and resources in the larger DOE. As the panel's report highlights, these missions are "fundamentally interrelated." Over the coming years, the NNSA will continue to evolve to meet the ever changing threat and will continue to take actions that

reflect the more complex and challenging international security environment. As the panel noted, we cannot turn back the clock.

Preserving the Science

The success of the U.S. nuclear security enterprise, dating back to the Manhattan Project and the early days of the Cold War, has always been firmly grounded in science, technology, and engineering. Today, the DOE national laboratory system delivers the innovative and transformative scientific and technical solutions to national security, energy security, and economic and environmental challenges facing the United States in the 21st century. This system—comprised of 17 laboratories across the country—is the core asset for bringing science and technology to bear on a wide range of issues. They are, as Secretary Moniz describes them, our nation’s “Science and Technology Powerhouse.” The labs solve problems, steward capabilities, operate unique assets, and deliver innovations for future prosperity. NNSA operates three of these laboratories, but uses the capabilities and expertise of most of them. Similarly, the other elements of DOE draw upon the capabilities and expertise of the NNSA laboratories to solve their many scientific and other challenges.

A common thread of the five chapters of the Congressional Advisory Panel’s report is NNSA’s relationship with the laboratories and sites, not only within the nuclear security enterprise, but more broadly with all of the DOE laboratories. Today we are working with the DOE and NNSA laboratory directors in a more strategic way, while also working with our interagency partners to ensure that our laboratories are able to deal with and anticipate the hard problems of today, and remain on the cutting edge of science and technology for tomorrow.

Meeting the Mission

At the core of the NNSA’s success is the science-based stockpile stewardship program. The remarkable achievements of our laboratories and facilities have enabled us to ensure a safe, secure and effective nuclear deterrent without nuclear explosive testing. That our laboratories and sites met this challenge through a new paradigm and set of capabilities is a feat that was much in doubt for many years. There were many skeptics, both in scientific and policy circles; but today, after significant investments in new experimental and diagnostic facilities, coupled with high performance computing capabilities to model and simulate test data and validate our experiments, we now know more about how nuclear weapons work than we did in the days of nuclear explosive testing.

This achievement supports our fundamental mission of certifying the safety, security and reliability of the stockpile each year to the President, and provides the scientific and engineering basis to meet our broader nuclear and national security challenges. With the knowledge and capabilities of the stewardship program, we can understand and respond to the nuclear proliferation threats of the future, and anticipate the development and advances of nuclear weapons and proliferant states. These capabilities have also allowed our complex to

address a broad range of national security threats from improvised explosive devices (IEDs) to novel and emerging conventional capabilities.

Leadership, Management and Performance

The leadership team within the DOE/NNSA, from Secretary Moniz on down, is committed to moving toward a more integrated management construct. This new approach will enable DOE/NNSA to address the leadership and cultural challenges discussed in the panel's report and develop a more forward-looking and enterprise-wide approach. To achieve the full potential of this integration, DOE/NNSA will work to avoid duplicating work and eliminate many of the redundancies identified in the report.

In some areas more responsibility can be delegated to NNSA, and in other areas NNSA may be able to defer activities to DOE. This is particularly true in some administrative and support functions. Secretary Moniz has stated that his vision is to manage the DOE through the three Under Secretaries, including the Under Secretary for Nuclear Security, all of whom are acting pursuant to the DOE policies in an integrated fashion. There are many areas where the DOE is developing uniform approaches, including program and project management, establishing priorities across the Department for the disposition of excess facilities, and cyber and physical security. NNSA is a full and equal participant in all of these endeavors. All of these improvements have been put in place without the need for legislation. The leadership team at the DOE/NNSA is fully committed to making NNSA's national security mission a success, and where appropriate, shifting responsibilities to eliminate redundancies.

Leadership actions to bring about a cultural shift started with reorganizing the Department to institutionalize management and performance as a core element of the broader DOE mission. In July 2013, Secretary Moniz implemented a fundamental structural change organizing the Department around three Under Secretaries. Each was assigned clear responsibility for the three major mission areas of the DOE: energy and science, nuclear security, and management and performance.

Flowing from this reorganization, and the emphasis on management and performance, is a change to the Department's approach to construction project management—a problem that has long plagued the DOE and one that the entire Department is committed to fix. At the end of 2014, the DOE released its "Improving Project Management" report, which reviewed project ownership, independent oversight, funding, and front-end planning. With the lessons learned from this report, DOE implemented a three-fold process to improve construction project management at DOE by: 1) re-establishing the Energy Systems Acquisition Advisory Board to be an institutionalized body; 2) creating a Project Management Risk Committee to ensure a corporate style of risk evaluation and risk management; and 3) improving the lines of responsibility and the peer review process under each of the three Under Secretaries.

NNSA is applying this new approach to management and performance across the board,

including for the uranium manufacturing capabilities at the Y-12 National Security Complex in Oak Ridge, Tennessee. For years, we had been planning a new multi-billion dollar construction project to replace the Cold War-era uranium manufacturing facilities. As we started to see cost overruns, schedule delays, and the inability of the design to meet the requirements, we stopped the project. Using the new approach, NNSA is developing a new concept that leverages existing facilities and adopts a multi-building approach to the construction of new facilities based on safety and security requirements specifically targeted to the work to be performed in each building. NNSA has appointed federal program and project managers and is now clarifying those requirements, completing the design, and ensuring that the costs are sound. Under this approach we have set a goal to remove the highest hazard operations from Building 9212 by 2019. The uranium construction projects, like all first-of-a-kind, complex nuclear construction projects will be held to the standard of achieving 90-percent design complete before a cost baseline is established.

In many instances of cost growth, particularly for large complex construction projects, requirements, costs, and risks were not well understood, and designs were immature when initial cost estimates were announced. Under the new approach NNSA will not establish a cost and schedule baseline for our technically complex and nuclear projects until the design is 90 percent complete.

On the other hand, we have been successful with construction projects under \$750 million, with these projects coming in on or under budget. In recognition of this effort NNSA is off the GAO high risk list for projects under \$750 million for the 4th year in a row!

Incentives

Finally, as we continue to partner with our M&Os and other contractors, we will seek to find the correct incentive structure for each contract. DOE/NNSA is unique in the extensive use of government-owned contractor-operated (GOCO) facilities. This unique arrangement is further complicated as our laboratories, which are also operated by M&O contractors, are also Federally Funded Research and Development Centers (FFRDC). FFRDCs have their own special status in performing specialized, long-term R&D work for the Government.

NNSA's recently revamped performance assessment structure uses six primary criteria for determining the incentive portion of the fees earned by our M&Os, and uses the contractor assurance reports as input to that process. Our goal is to be open and transparent in our assessment determinations. We must also find the right incentive structure to ensure that all our contractors provide outstanding performance as we execute our national security missions. Our M&O contractors manage and operate disparate activities, ranging from research and development to industrial production. Accordingly, when it comes to contracting approaches, one size does not fit all. As a result, we will work to develop the right incentives for each circumstance and for each of our contracts. We do this while we also continue to look to our

contractors to provide the management, support, and guidance that will enable excellence in the workforce at our facilities.

III. NNSA Response to the Final Report of the Congressional Advisory Panel on the Governance of the Nuclear Security Enterprise

1. Strengthen National Leadership Focus, Direction, and Follow-Through

Panel Recommendations

1. *The President should provide guidance and oversight sufficient to direct and align nuclear security policies, plans, programs, and budgets across Departments.*
2. *Congress should establish new mechanisms to strengthen and unify its leadership and oversight of the nuclear enterprise and its missions.*

Overview

The recommendations in Chapter 2 of the report are addressed to the President and the Congress and focused on the panel's recommendations to achieve focused consistent leadership and direction from the executive and legislative branches. These actions are needed to correct the "lack of strong, focused political leadership".

While clearly neither nuclear weapons nor the nuclear weapons complex play as prominent a role in American politics, culture or national awareness as they did in the Cold War, an assured reliable deterrent is still an important part of the National Security Strategy. Beginning in 2009 in Prague, and continuing through the 2010 Nuclear Posture Review, the 2013 Nuclear Weapons Employment Strategy of the United States, the 2014 Quadrennial Defense Review, and the 2015 National Security Strategy, the President has articulated a comprehensive nuclear security vision. This leadership from the President has resulted in a clear set of requirements and baseline strategy that the NNSA and Department of Defense (DoD) developed within the Nuclear Weapons Council to reduce our reliance on nuclear weapons while ensuring the viability of a smaller nuclear stockpile for decades to come.

On the other hand, in recent years DOE and DoD have both struggled to meet these requirements within the funding provided. Since the attacks of September 11, the focus, attention and priorities of the country have simply not been the nuclear weapons complex.

Recent reviews and awareness however, have regained the attention of the National Security Council (NSC) and the Office of Management and Budget (OMB). NSC, OMB, DOE and DoD collectively approach the needs of the nuclear enterprise and address them holistically.

This renewed awareness of the needs of the nuclear weapons complex is reflected in the NNSA's budget request for fiscal year 2016 and in the direction and guidance provided to both departments to align NNSA and DoD requirements, plans and resources.

Whether NNSA will be successful in implementing the programs that are outlined in the budget request for fiscal year 2016 is heavily dependent on receiving the requested funding in the requested manner. If the funding caps contained in the Budget Control Act are kept in place, NNSA will not meet its missions.

All of the NNSA missions are important since each mission addresses a vital aspect of nuclear security. Advocates often contend that one mission should have more prominence over the others. It is DOE's task, however, to ensure that all of its missions are met through a balanced approach. Putting priority on one over the other overlooks the interdependency of the missions, and the importance of the scientific and engineering capabilities that must be sustained to execute them.

2. Solidify Cabinet Secretary Ownership of the Mission

Panel Recommendations

3. *Congress should amend the NNSA Act and related legislation to clarify Departmental leadership roles. The Secretary "owns" the nuclear enterprise missions, sets Departmental policy for the nuclear enterprise, and is accountable to the President and Congress for the enterprise. The Director, Office of Nuclear Security (ONS), has full authority to execute the nuclear enterprise missions consistent with the Secretary's policy. Departmental missions-support staffs advise and assist the Director in executing enterprise missions.*
4. *The Secretary should implement Departmental management processes that specify the Director's authorities for executing nuclear enterprise missions. These authorities include: Line management authority for the safe, secure, and environmentally responsible execution of nuclear security missions; Management authority for missions-support staffs assigned to the Office of Nuclear Security; Concurrence authority for Departmental rulemaking on ONS matters.*
5. *The Secretary and Director should reform DOE regulation to strengthen risk management.*

Overview

NNSA is aware of the 50-plus reviews, studies, and audits of various aspects of the NNSA management and of the nuclear security missions. Many other studies predate the NNSA, including the January 1999 report of the President's Foreign Intelligence Advisory Board (PFIAB), which recommended creating NNSA as a semi-autonomous agency. In the majority of these studies, having a committed Secretary of Energy is highlighted as an essential ingredient of success. Similarly there have been concerns over the years, including in the PFIAB report, about whether the work of what is now the NNSA would compete successfully among the many priorities of the DOE bureaucracy in the absence of such leadership. While there are many organizational options available to ensure that there is sufficient priority, focus and attention paid to the national security missions, there is no substitute for strong cabinet ownership.

NNSA has the benefit of DOE senior leadership--Secretary Moniz and Deputy Secretary Elizabeth Sherwood-Randall—with a strong interest in the success of NNSA and the national security mission. Ensuring that this attention remains in the future will take vigilance and commitment from both future Congresses and future Administrations. Even if the Congress were to enact legislative changes in the near term, having committed leadership, including a Secretary who as the panel stated “owns the nuclear enterprise missions,” is not guaranteed. As far back as 1985, the Blue Ribbon Task Group on Nuclear Weapons Program Management recommended “that one of the two top positions in DOE should continue to be manned by an individual knowledgeable in national security matters and included in the National Security Council Process.”

DOE oversight, provided by an experienced Secretary and Deputy Secretary, serves the needs of the Department and NNSA. The statutes governing the NNSA clearly provide the authority the Administrator needs to execute the missions of the NNSA. However, NNSA recognizes that over time duplicative DOE and NNSA actions have been put in place that have caused delay and frustration amongst the federal work force and our M&O contractors. Secretary Moniz has directed NNSA to work within DOE to eliminate much of the duplication. The right balance is being reestablished because in the end, as the panel recognizes, the Secretary is accountable for the nuclear enterprise and the effective execution of its missions.

Specific Comments

A. Clarified Management Authorities. Secretary Moniz has made significant strides to demonstrate leadership and ownership of the nuclear security mission. For example, in July 2013, Secretary Moniz changed the DOE structure and clarified the roles of the Department's leadership. The three Under Secretaries were assigned clear responsibility for the three DOE mission areas: 1) nuclear security; 2) energy and science; and 3) management and performance. For nuclear security, the NNSA Administrator has clear authority to execute the nuclear security missions under the NNSA Act, consistent with the Secretary's policies. These decision-making practices are now included in the DOE policy documents.

Recently, DOE completed a review and revision of all DOE safety directives. NNSA was deeply involved in the process and as a result, duplicative DOE/NNSA requirements were eliminated. Most of the revised directives have now been implemented in M&O contracts.

DOE/NNSA has also ensured that roles and responsibilities for different functions, particularly for critical line functions such as nuclear safety, have been included in the revised orders. The most recent revision of the *NNSA Functions, Responsibilities and Authorities (FRA) Document for Safety Management* defines, identifies, and clarifies the NNSA safety management functions, responsibilities, risk acceptance authorities, and associated delegations within NNSA Headquarter (HQ), Field Offices, line, program, and functional management organizations, to ensure that work is performed safely.

Another example of an effective and collaborative approach to decision making and policy development is the recently established DOE Chief Security Officer Council. This Council makes sure that the Department's nuclear security missions are executed consistently across the Department and comply with Secretary's policies. The Council meets monthly to discuss security concerns, make policy recommendations, and address common special interest topics to ensure that the special nuclear material, the facilities and the people are adequately protected. The security polices recognize that there are purposeful differences in security requirements across the Department (e.g., to address differences in special nuclear material across sites) and ensure the Administrator has the ability to address those differences. They provide the Administrator authority to approve supplemental directives and authorize exceptions and equivalencies to implement security at NNSA sites. Because security is a line management responsibility, NNSA implements security and DOE oversees that implementation on behalf of the Secretary.

B. Strengthened Risk Management. NNSA has strengthened its analytical expertise and processes for assessing risks, especially for nuclear and other high hazard functions by implementing a Safety Basis Professional Program. This program provides training for the development of new safety professionals, as well as a venue for continuous training for those already filling these assignments.

In November 2014, DOE issued a revision to its guidance for preparing Documented Safety Analyses. The revision incorporated changes to allow probabilistic assessment to be used as part of the safety analyses for nuclear facilities. Future efforts will include publishing a new Accident Analysis Handbook that will include risk analysis consistent with national and international standards.

NNSA also works within DOE to develop coordinated responses to Defense Nuclear Facility Safety Board (DNFSB) recommendations and inquiries. The NNSA Administrator holds routine discussions with the DNFSB members to exchange information and maintain mutual awareness of ongoing issues. In addition, senior NNSA and DNFSB staff members meet routinely to

exchange more detailed technical information, discuss a wide range of issues to maintain open lines of communications and to manage risk and expectations related to ongoing inquiries, findings and recommendations.

NNSA tries to innovate where possible. One example is the Kansas City Plant (KCP), where NNSA relies on industry best practices. Lessons learned from the KCP continue to be exported and adopted at the other sites for activities that do not involve high hazard operations, nuclear material or explosives. In fact, NNSA has been applying, where appropriate, site-specific substitution of commercial standards in place of DOE/NNSA standards, and as allowed by these standards, since 2006. NNSA will continue to expand the use of commercial standards where and as appropriate. During FY 2015, M&O partners will evaluate additional opportunities to replace non-nuclear DOE/NNSA requirements with commercial standards. NNSA will continue to balance new approaches to business and other practices with the necessary rigor needed in operational safety and security for nuclear and high hazard activities to ensure worker and public safety. As the panel said “the consequences of failure are enormous, potentially placing large numbers of lives at risk and even changing the course of history.”

These examples demonstrated that we have “Cabinet Secretary ownership” of the nuclear security mission and that we have clarified leadership roles, ensuring NNSA has full authority to execute its missions and reform regulations to strengthen risk management. NNSA will continue to work within the DOE on these efforts.

C. Management Authority for Mission- Support Staffs. Secretary Moniz has already taken a number of steps to improve management authority for mission-support staff, and has clarified roles and responsibilities to reduce duplication of work within the DOE. We recognize, however, that more work remains. For example, NNSA’s Office of Management and Budget participates in all Department-wide financial and accounting issues in support of requirements of the DOE Chief Financial Officer (CFO) including a clean audit opinion. NNSA has been an integral part of the Secretary’s Project Management Working Group and has implemented the recommendations contained in it to ensure all NNSA work follows DOE Orders and Department best practices. In addition, NNSA has moved to consolidate several NNSA offices to clarify responsibilities and authority within NNSA. For example, on January 5, 2015, NNSA stood up the new Office of Safety, Infrastructure & Operations (NA-50) to consolidate safety, infrastructure and enterprise-wide service functions, which had previously been performed by three different offices. In addition to consolidating these three functions, the new NA-50 ensures that safety and infrastructure issues are considered in a holistic, integrated manner that is complementary to programmatic needs, while ensuring that safety remains NNSA’s first priority.

3. Adopt Proven Management Practices to Build a Culture of Performance, Accountability, and Credibility

Panel Recommendations

6. *To begin reforming the DOE&NS culture, the Secretary and Director should develop within six months a plan for continuous management learning and improvement, including an implementation plan for the panel's recommendation with milestone target dates.*
7. *The Secretary and Director should implement industry best practices for shaping and building the enterprise workforce.*
8. *The Secretary should establish trusted Cost Analysis and Resource Management staffs, tools, and data; the Director should be responsible for this process for ONS.*
9. *The Director should establish a simple, clear line-management operating structure that both synchronizes activities across programs, mission-support functions, and operating sites and provides leadership focus for key programs.*
10. *The Director should establish program managers who are provided necessary authorities and resources, and who are held accountable for major mission deliverables.*
11. *The Congress, Secretary, and Director should adopt a simplified budget and accounting structure (by reducing budget controls lines) that aligns resources to achieve efficient mission execution while providing sufficient visibility to enable effective management oversight.*
12. *The Director should develop a strategy and plan to reshape the weapons complex to meet future needs.*
13. *The Secretary and Director should continue ongoing efforts to improve construction project management capabilities (at all levels) by introducing disciplined management practices in order to recapitalize infrastructure on time and on budget.*

Overview

The NNSA is a multi-site entity with six large M&O contractors operating these sites, a number of other prime and subcontractors (including many small businesses), and a relatively small cadre of federal employees who establish requirements, provide program guidance and direction, and conduct oversight. NNSA relies heavily on the technical expertise of the M&O contractors to manage the laboratories and facilities, as well as on the technical expertise of the wide variety of other contractors who provide services that include security forces, architectural and construction expertise, and independent technical advice. The federal

employees define the programs, develop and defend the budgets, and ensure the contractors are implementing the tasks safely and securely, in accordance with applicable DOE orders. In addition, NNSA and its contractors must ensure that they adhere to a wide range of external statutory and regulatory regimes, some of which are government-wide. In many instances, additional restrictions and limitations are uniquely imposed on specific NNSA operations in annual congressional appropriations and authorization bills.

After a period of emphasis and investment in the scientific aspects of the complex, including the development of a variety of experimental facilities and computational tools needed to maintain the stockpile without testing, NNSA has now turned its attention to long overdue improvements to the operational facilities. One recent example of this shift in attention is the new National Security Campus facility in Kansas City, MO, which began operations in August, 2014. The new, smaller campus will generate a 25 percent reduction in operating costs in a physical footprint of only 1.5 million square feet, down from 3.2 million square feet in the old facility. This project is a case study for a successful public/private partnership in which DOE/NNSA signed a 20-year GSA occupancy agreement to eliminate \$140 million in annual facility costs at the old Bannister facility in exchange for a \$60 million annual lease payment for the new campus. This commitment enabled the developer to secure third party financing to build and deliver the new campus below the cost and timeline that could have been delivered under a traditional line item project. Overall, the project will create cumulative annual savings that will exceed all project costs, even including the cost of moving from the old Bannister Complex¹ to the new campus.

NNSA is now focused on upgrading and replacing the old and decaying uranium and plutonium facilities. At Los Alamos, the new plutonium laboratory is now open, upgrades to PF-4 are ongoing, and NNSA is working on a design for plutonium modules to meet the long term requirement to have the capability to manufacture 50 – 80 pits per year. At Y-12, site preparations and design activities are ongoing for the construction of new uranium facilities, new uranium processing and manufacturing technologies are in development and upgrades to some existing buildings are also in design. NNSA must also address the substantial back log of deferred maintenance activities and replace several outdated administrative buildings, notably at the Pantex site in Amarillo, Texas, and in Albuquerque, New Mexico.

While NNSA generally executes projects under \$750 million on budget and on schedule, large, first-of-a-kind complex nuclear facilities and programs have proven to be very difficult. Recent high profile problems have been due, in many cases, to immature or inadequate designs, lack of technical understanding, inadequate program or project discipline, and lack of adequate oversight—due in large part to a shortage of technically qualified federal staff, over emphasis on cost cutting, and a shortage of qualified materials and labor.

¹ DOE/NNSA provided its integrated plan for the disposition of the old Kansas City Plant facility in its report to Congress, *Disposition of the Bannister Federal Complex* (August 2014).

Over the course of the last two years, NNSA looked closely at the lessons learned from the previous problems and has put in place a number of initiatives to address the issues identified in the panel's report and elsewhere. These include continuing to grow the capabilities and expertise of our Office of Acquisition and Program Management, established in 2011, to ensure the rigor required by DOE Order 413; and, standing up the Office of Cost Estimating and Program Evaluation (CEPE) in September, 2014.

NNSA, with the support of Secretary Moniz, is focused on replacing the many outdated facilities and reducing the multi-billion dollar backlog of deferred maintenance.² NNSA has thousands of outdated facilities that need attention in addition to the high profile outdated plutonium and uranium facilities at Los Alamos and Y-12. Much of the operating and scientific equipment across the complex is also outdated and must be replaced if NNSA is to perform its mission and recruit top scientific, technical and engineering talent. Although NNSA has already increased its funding for updating facilities and equipment, additional funding will be needed to resolve the backlog.

NNSA aspires to be a high-performing organization with clear missions and objectives in support of the national interest. Achieving this goal will take, at a minimum, adequate funding and the right number of people, greater discipline in all aspects of program and project execution, and support for and confidence in the federal and contractor workforce. Outlined in the specific comments below are many of the actions that NNSA has already taken. Improving the NNSA will take the commitment not only of the DOE/NNSA leadership; it will take the support of the Congress and our many stakeholders.

As discussed earlier in this response, DOE/NNSA has received over 50 reports examining governance, science, operations, security, safety, too much or too little oversight, and project and program management. Each of the various reports has offered solutions to the various issues and problems. Similarly, the panel's report discusses both new and old issues and problems and makes recommendations. NNSA takes seriously the various recommendations and will closely track those that it is implementing.

Specific Comments

A. Established Continuous Improvements Mechanisms. The DOE/NNSA have several ongoing efforts to help build a stronger performance culture and institute processes for continuous management learning and improvement as well as metrics to measure the progress. For example, NNSA recently completed safety culture surveys of the M&O and Federal workforce,

² NNSA seeks to accomplish the disposition of excess facilities judiciously, consistent with the availability of funding, as reported in its report to Congress, *Fiscal Year 2014 NNSA Facilities Disposition Report*, dated September 2014.

to understand cultural and workplace challenges and best practices. NNSA and its M&O partners are developing safety culture plans to guide and sustain improvements. Since the survey, NNSA has held two meetings department-wide meetings with both Federal and M&O senior leadership to share lessons learned and best practices from these efforts.

Building on the work done at DOE/NNSA sites, the Department is establishing a Safety Culture Improvement Panel that will help sustain the overall momentum. Among other responsibilities, the Panel will review significant Departmental changes for potential impacts on safety culture. This group will be a forum to share best practices and lessons learned between and among Departmental organizations.

NNSA has also initiated robust and frequent internal communication to ensure the overall success of reform plans and objectives. NNSA holds semi-annual off-site meetings with all NNSA Senior Executive Service members, quarterly meetings with all Laboratory leaders, quarterly meetings with Field Office managers, semi-annual joint meetings with the Laboratory and Production Plant leaders, and frequent all-hands meetings and engagements with the contractor and federal workforce.

NNSA is also in the process of finishing a new strategic vision document that will layout the NNSA vision for the future, core values, and priorities for the entire nuclear security enterprise. NNSA has also been criticized for weak internal communications. As a result we are improving routine internal communication mechanisms, which will be used not only to communicate reform plans and objectives, but also the NNSA mission, vision, and other enterprise-wide information to institute a performance-based culture.

Finally, NNSA will continue to capitalize on lessons learned across the nuclear security enterprise. We will continue to ensure that there are no seams between our field offices and headquarters offices and that we all work together to identify and share lessons learned across the complex. NNSA is committed to the contractor assurance systems as part of efficient federal oversight and we will utilize lessons from the successful oversight improvement pilot program at the Kansas City Plant where appropriate.³

B. Implemented Workforce Best Practices. A technically capable and competent workforce that clearly understands its roles, responsibilities, and authorities is paramount to properly executing the NNSA mission. NNSA recognizes the importance of eliminating redundant and conflicting responsibilities and authorities across the NNSA complex (i.e., line-management, mission-support, and field offices), and establishing career and leadership development programs for the federal and contractor workforce. NNSA also must ensure that the federal workforce is large enough to carry out all of its duties. The NNSA workforce today is 10 percent

³ As reported to Congress, *Extension of Program Principles from the Kansas City Plant Oversight Pilot*, October 2014.

smaller than it was just 5 years ago and has much more work on its plate. NNSA is actively engaged in hiring the right skills needed to support the NNSA for years to come, and to ensure orderly succession planning, but is currently hampered by congressional hiring restrictions.

To date, NNSA has implemented several best practices for shaping and building the enterprise workforce to increase performance, accountability, and credibility. For example, NNSA has increased the use of rotational assignments between Headquarters and Field Offices to share best practices, consolidate and synchronize guidance, and serve as professional development. NNSA has also completed a strategic review of staffing plans to ensure that the vacancies that are filled are most critical to the enterprise; align with core mission, tasks, and functions; and support effective workforce planning and position management. These actions will help meet staffing requirements and develop effective leaders.

C. Enhanced Cost Analysis Capabilities. NNSA agrees that effective cost analysis and resource management are central to effective program and project execution, as they establish both discipline and accountability. The NNSA is improving these capabilities and will use them in our revitalized Planning, Programming, Budgeting, and Evaluation (PPBE) process.

As mandated by the FY 2014 National Defense Authorization Act, the NNSA established the Office of Cost Estimating and Program Evaluation (CEPE) to provide independent, data driven analysis on all aspects of the nuclear security enterprise, leading to better mission planning, budgeting and performance. The office stood up in September and a permanent CEPE director will be announced soon.

CEPE will build capability in several key areas: cost estimation; program evaluation; cost data collection; and systems engineering. It will lead the analyses of alternatives process for major programs and projects, which will serve as the basis for assessing and validating program requirements. CEPE has started early stage cost estimates for the Domestic Uranium Enrichment capability project. As capacity permits, CEPE cost estimators, in coordination with DoD CAPE, will begin baselining other activities, including the B61 LEP and the W88 Alt in advance of their Phase 6.4 milestones in 2016. Additionally, CEPE is providing programming guidance for the FY 2017 budget request and will lead the program review. Although CEPE has started to build its internal cost estimating ability, in the near term NNSA will engage outside experts to conduct independent cost estimates for other capital asset projects, such as the U.S. Army Corps of Engineers and Parsons.

CEPE's cost estimating capability will not replace the necessary ability of the NNSA program offices to estimate costs. The relationship between NNSA program cost offices and CEPE is modeled after the relationship between CAPE and a military Service-level cost center, where CAPE acts as a DoD-wide capability that provides analysis independent of Service interests, while the military Service cost centers provide detailed estimates for use by the Services.

CEPE and the program cost offices will work together to ensure that requirements, policies, processes, and procedures are uniform across all NNSA cost estimates, thus establishing a uniform NNSA federal cost analysis capability. CEPE and the relevant program cost offices will reconcile their estimates to provide the acquisition executive validated insight on risk, cost, and schedule for programs including the life extension programs. By statute, CEPE does not provide cost estimates for capital construction projects.

NNSA's Office of Acquisition and Project Management (APM), which was established in 2012, is focused on the major capital construction projects. This office is working to enhance contract and project management practices and has lead the NNSA's effort to deliver results by supporting rigorous and well-justified alternatives assessments and evaluations, and improving cost and schedule performance. These efforts are bearing positive results. In 2013, GAO recognized DOE's progress in executing projects under \$750 million, and now only the three NNSA large nuclear construction projects costing more than \$750 million remain on the list.

D. Designated Program Managers. NNSA agrees that capable and well-trained program managers are critical to ensure performance, accountability and credibility. As a result, NNSA is working to ensure managers have the resources, skills and management authorities necessary to execute the mission and are then be held accountable for their performance. NNSA has designated program managers for each LEP and starting in 2014, we implemented a similar approach for NNSA's key nuclear materials or commodities. These program managers have been provided the necessary authorities and resources, albeit within constrained budgets, and are held accountable for their deliverables. They have control over personnel assigned to their programs and over funds uniquely identified for their programs.

Over the past year, the Secretary and the NNSA Administrator have implemented a new vision for "program" managers, as distinct from "project" managers. The program managers are focused on mission need and resource management, whereas project managers are focused on delivering major capital construction projects and supporting infrastructure projects on time and on budget, consistent with the DOE *Implementing Project Management* report. Commodity managers have been established for the major nuclear enterprise commodities, including uranium, plutonium, tritium and domestic uranium enrichment. This ensures there is one senior executive who works closely with the federal project directors while overseeing all programmatic aspects for each of our major nuclear commodities.

The Uranium Program Manager (UPM), created in July, 2014, was the first commodity manager. The UPM has the responsibility to develop, approve, and oversee the execution of a uranium program strategy, and ensures NNSA maintains its uranium capabilities in support of mission requirements. More specifically, the UPM has created an overarching uranium manufacturing strategy reflected in the mission Program Requirements Document (PRD). NNSA has also accelerated efforts to reduce the material-at-risk within existing Y-12 facilities, identified the suite of projects necessary to support the full uranium manufacturing mission, and is

developing designs and estimates for projects to recapitalize existing facilities and process systems to be relocated from Building 9212, and those facilities that will replace Building 9212.

The domestic uranium enrichment, plutonium, and tritium mission managers have the similar responsibility to develop, approve, and oversee the execution of their respective commodity program strategies.

For management of the LEPs, NNSA has designated federal program managers for the major LEP activities underway, the W76-1, the B61-12 and W70-4, as well as the W88 ALT 370. NNSA recently implemented earned value management principles for LEP activities across all NNSA sites. The NNSA organizations work closely with the labs and plants to detail work scope and schedules for specific activities needed to support the LEPs. These actions will improve NNSA's LEP management, coordination and decision-making rigor.

E. Simplified Budget Structure. NNSA agrees that a simplified budget and accounting structure would improve NNSA's ability to manage the mission and still provide transparency into programmatic activities. NNSA has already taken a number of steps to simplify its budget structure, reduce the number of internal accounting codes, and implement improvements in financial integration across the nuclear security enterprise.

NNSA agrees with the Congressional Advisory Panel that Congress should reduce the number of budget control lines for the major program and mission-support functions, and looks forward to continuing this effort that began in 2014. NNSA has reduced the number of internal Budget and Reporting (B&R) codes by 30 percent since 2011 and is looking at ways to eliminate more B&R codes, particularly those with little to no funding, while also maintaining sufficient visibility into program and project performance.

The President's fiscal year 2016 budget request realigns the budgets managed by the Office of Defense Nuclear Nonproliferation into the following programs: Material Management and Minimization, Global Material Security, Nonproliferation and Arms Control, Nonproliferation Construction, and Defense Nuclear Nonproliferation Research and Development. The request also moves the Nuclear Counterterrorism Incident Response (NCTIR) and Counterterrorism and Counterproliferation Programs (CT/CP) budget lines from the Weapons Activities appropriation to the Defense Nuclear Nonproliferation appropriation. This change aligns all NNSA funding for preventing, countering, and responding to global nuclear dangers in one appropriation, and strengthens existing collaborations among these mission areas.

The Department is also working to improve the quality and consistency of financial information tracked across the enterprise. Improved data will provide cost estimators, program managers, leaders and oversight authorities with insight needed to support analysis and decision-making, and instill confidence in NNSA's stewardship of taxpayer dollars.

F. Sustaining Base Capabilities in the Enterprise. NNSA agrees that addressing the deferred maintenance backlog, providing cost-effective, requirements-driven infrastructure, maintaining a skilled workforce, and investing in innovative research are vital to ensure NNSA can meet future requirements. NNSA has been building its capabilities to provide independent, data-driven analysis on infrastructure and workforce planning that will lead to better budget formulation and mission performance.

Under Secretary Moniz's leadership, DOE/NNSA have prioritized efforts to halt and reduce deferred maintenance. In 2013, DOE/NNSA, through the National Laboratory Operations Board, established an integrated plan to conduct site-wide assessments of general purpose infrastructure across all seventeen DOE/NNSA labs and plants. This was the first time DOE used common standards and an enterprise-wide approach to assess infrastructure. DOE/NNSA use a variation of a Marine Corp rating system that integrates condition with suitability for mission to create ratings of Adequate, Substandard, and Inadequate. The assessment will enable managers to understand where there is excess space, the physical condition of the assets and whether the assets can support the mission. With the results of the assessment, DOE/NNSA will be able to implement infrastructure investment strategies to achieve the Secretary's guidance that deferred maintenance will not grow beyond FY 2015 year end totals.

Other infrastructure initiatives include:

- Implementing DoD's BUILDER Sustainment Management System to track facility condition and modernization requirements.
- Adapting DoD's Mission Dependency Index to provide a quantified, auditable measure of the importance of individual facilities to NNSA missions.
- Improving the way NNSA procures materials and finances buildings. For example, NNSA is increasing its ability to acquire building systems that are common to all sites across the NNSA (e.g., roof, HVAC) via use of strategic procurements. NNSA, working with the GAO, used a public-private partnership for the Kansas City replacement facility and will look at other options, including alternative financing, when the appropriate conditions and business case exists to provide modern facilities for our workforce.

G. Improved Construction Project Management. NNSA agrees that persistent commitment and continuing focus on improving project management is necessary to resolve construction project challenges--an issue that has long plagued the DOE/NNSA, and one which we are addressing in a creative, disciplined and transparent fashion. At the end of 2014, the Secretary released the *Improving Project Management* report, which reviewed project ownership, independent oversight, funding, front-end planning, and culture from experienced project management leaders. Using this report's findings, DOE/NNSA have implemented a three-fold process to better improve construction project management at DOE by: 1) re-establishing the Energy Systems Acquisition Advisory Board (ESAAB) to be an Institutionalized body; 2) creating a Project Management Risk Committee to ensure a corporate style of risk evaluation and risk management; and 3) improving the lines of responsibility and the peer review process within

the three Under Secretaries, each of which will have their own project assessment office independent of line management responsibility.

NNSA is applying this new management and performance approach to the uranium manufacturing capabilities at the Y-12 National Security Complex in Oak Ridge, TN. For years, NNSA had been planning a new multi-billion dollar, Uranium Processing Facility (UPF) to replace the Manhattan Project-era uranium manufacturing facilities. As NNSA started to see cost overruns, schedule delays, and the inability of the design to meet the requirements, NNSA reassessed its options with its partners and with an independent “red team” review. Using the results of these reviews, NNSA started development of a revised UPF concept that consists of separate buildings, segregated by security and hazard requirements, in order to minimize the nuclear footprint, build non-nuclear facilities where appropriate, and utilize existing infrastructure at Y-12.

To ensure the program and project are fully integrated, NNSA is using the UPM to create a formalized, overarching uranium manufacturing strategy, and the FPD to execute the construction projects. Using this new model, NNSA will modernize and right-size uranium capabilities at Y-12 and meet mission needs in a disciplined fashion. The highest hazard operations will be shut down at Building 9212, once an Electro-Refining capability comes online, which is scheduled to take place in 2021. All other enriched uranium programmatic operations in Building 9212 will end in 2025. The Uranium construction projects, like all complex nuclear capital construction projects will be held to the standard of achieving 90 percent design before a cost baseline is established. NNSA is now in the process of clarifying requirements, completing the design, and ensuring that the estimates are sound.

DOE has designated management and performance as one of the major functions of the Department to deliver projects on time and on budget. NNSA has been an integral part of the Secretary’s Project Management Working Group and has implemented the recommendations provided by it. With two members on the Project Management Risk Committee, NNSA is ensuring that all work follows DOE Orders and, more importantly, the best practices of the Department. To implement these improvements, NNSA has instituted specific policy changes via memorandum and business operations procedures for 90 percent design policy, cost estimating, peer reviews, and beneficial occupancy. NNSA has realigned the peer review reporting requirement to the Principal Deputy Administrator to ensure visibility of this important function at the most senior level. Finally, regarding staffing, every capital asset project managed by DOE Order 413 has a staffing review performed as part of the Critical Decision 2 (Approve Project Baseline) process to ensure appropriate trained staff is available and assigned to the project. If appropriate staff is not available, the project budget is increased to procure the necessary support from the U.S. Army Corps of Engineers and/or support service contractors.

As a result of improvements NNSA has made to project management over the past three years, NNSA evolved from delivering its projects over budget on a portfolio basis to 7.5 percent under

budget on a portfolio basis. Over the past three and a half years, NNSA has delivered its \$800 million project portfolio approximately \$60 million under its original budget.

These examples represent demonstrated success in adopting proven management practices and industry best practices, increasing cost analysis capabilities, synchronizing program performance and accountability, and improving infrastructure and construction project management practices.

4. Maximize the Contributions of the Management and Operating (M&O) Organizations to the Safe, Secure Execution of the Mission

Panel Recommendations

- 14. The Director should reform M&O contracts, replacing the award fee structure with fixed fees for longer (multi-year) award terms and linking performance incentives to the contractual period of performance.*
- 15. The Secretary and Director should reinforce the M&O parent organizations' obligations to contribute to enterprise management improvement initiatives.*
- 16. The Secretary and Director should eliminate wasteful and ineffective transactional oversight.*
- 17. The Secretary, Director, and the National Laboratory Directors should adopt management practices that serve to rebuild the strategic Government-FFRDC relationship.*

Overview

Since its origins in the Atomic Energy Commission (AEC), the nuclear weapons complex has relied on a close working relationship with, and the technical expertise of, the M&O partners, including the national laboratories. Moving to for-profit M&O contractors, particularly at the laboratories, initially at Sandia National Laboratory and later at Los Alamos and Lawrence Livermore National Laboratories, has challenged this relationship. Similar transitions at the other NNSA facilities occurred earlier, and have been less contentious, although even at Sandia the transition was less disruptive than at the other two labs. In the early AEC and DOE contracts the M&O contractors managed the labs for a small, or in some instances, even a token fee. In exchange, the government held all of the risk for programmatic issues, failure, incident, or accident. Changing views, particularly with respect to transparency and accountability, as well as some specific incidents, caused that risk formula to shift more toward the M&O and other contractors, who in turn required more compensation to assume more risk. Finding the right balance of incentive, competition, and compensation, while maintaining the close relationship of a trusted partner has and will continue to be a challenge.

Achieving increased accountability and visibility for all aspects of performance including programmatic, cost, financial, security, and environmental management has indeed reduced the flexibility in many areas of the complex. On the other hand, returning to the attitudes and tolerance levels that existed in the early days of the AEC are neither practical nor possible. As a result, NNSA and its partners must find a balance that works for each and meets the expectations of our stakeholders.

The Congressional Advisory Panel report found “the transition to award fees to encourage competition has created the belief among Federal personnel that greater oversight and transparency is required to monitor M&O performance.” NNSA believes that this conclusion is accurate but that the management and operations structure of today reflect the general changes in expectations for risk and accountability that have occurred over the last 40 years. Reinstating the trust and the cooperation on both sides of the equation, federal and contractor, while meeting stakeholder expectations, will remain a challenge. NNSA and its M&O contractors have started to address many of the issues identified in this chapter of the report, but much work remains. Each recognize that their respective reputations are at risk and that the continuous circle of events and incidents and the lack of accountability and transparency leads to more audits, reviews, and investigations, which in turn leads to more oversight and less flexibility, which leads to less trust and mutual respect, which leads to a risk averse environment, which completes the circle, as this leads back to the perceived lack of accountability and transparency every time there is a surprise.

Increasing workloads, budget constraints, increased expectations for transparency and accountability, an increasingly demanding culture across the board, and an inability to turn the clock back will require that all parties in the NNSA nuclear enterprise work to find ways to make the enterprise meet expectations for mission, efficiency, and accountability.

NNSA fully supports the panel’s recommendation to maximize the contributions of the M&O Organizations to the safe, secure execution of the mission. NNSA continues to strive for as much standardization as reasonable, but believes that “one size does not fit all” in the nuclear security enterprise when it comes to issues like incentive structure and parent organization oversight model. NNSA is committed to working with its M&O Partners to identify solutions that will motivate the entire nuclear security enterprise workforce to successfully perform the full set of NNSA national security missions.

Specific Comments

A. Improving Performance Incentives. The key to improving contract performance and partnership with the M&O’s and other contractors will be a tailored approach to incentives that is appropriate for the unique missions and risks associated with the operation of each NNSA site. NNSA must balance the incentives for the individual M&O Partner against the need to optimize the incentives for enterprise success. We have aimed to institutionalize this through

the M&O's Strategic Performance Evaluation Plan, including specific performance objectives and the tailored fee structure for each site. All arrangements must ensure tangible benefits and accountability to the taxpayer. In addition, NNSA will seek standardization in contract structure to the greatest extent practicable, while recognizing that one size does not fit all in the NNSA enterprise.

At the same time, however, we must also ensure that our incentive and contractual structures foster continuing excellence in performing the no-fail mission of the NNSA nuclear enterprise. We can never lose sight of the fact that our people remain our most important asset, and so while we incentivize their performance we must position our M&O partners to recruit and retain the specialized workforce that they need to execute that mission successfully. NNSA will also work to identify those management practices that would help to restore a more strategic FFRDC-like approach.

NNSA fully agrees with the panel's recommendations that the incentive structures need to be modified, particularly for our national security laboratories. We know that one size does not fit all, as even our three national security laboratories are different from one another. As we work to identify the incentives that will result in excellence, we will look at the contract structures and the appropriate mix of incentives, including fixed and incentive fees.

NNSA has recently re-established a policy office reporting directly to the Administrator. As one of its first tasks, the policy office will look at the incentive and management structures for all of the M&O contractors at the production facilities, the laboratories, and the Nevada National Security Site. It is important that the incentives in each contract be tailored to the contractor and to the work that the contractor performs.

Change of this magnitude will take time, and the results of such change are not going to be immediately measurable. NNSA will remain dedicated to assessing, discussing, implementing, and fine-tuning incentives tailored for each M&O contract.

B. Strengthening M&O Parent Oversight. NNSA concurs that M&O organizations and their parent corporations make invaluable contributions to the nuclear security enterprise. NNSA believes that a strong M&O parent organization oversight model can ensure that best practices and management expertise contribute both to M&Os management improvements as well as enterprise-wide initiatives. The development of effective and transparent M&O Contractor Assurance Systems is the cornerstone to reducing transactional oversight and ensuring effective M&O performance. NNSA requires the parent organization to both evaluate and contribute to the improved effectiveness of the M&O organizations. The results of these evaluations are used to evaluate the contractor's performance and support continuous improvement.

NNSA leadership routinely talks with the various corporate boards and parent organization executives to better understand their commitment to support the nuclear security enterprise and to reinforce the essential role these companies play in managing and improving that

enterprise. M&Os must work in partnership with the DOE/NNSA complex to develop, integrate, and implement enterprise solutions that maximize program outputs at best value to the government.

For example, NNSA initiated an effort to receive annual inputs from M&O organizations describing efficiencies achieved during the prior year and the plan to achieve further efficiencies. As part of this effort, NNSA also asks for input on specific changes NNSA can make that would enhance productivity at each site within our enterprise. NNSA is committed to continuing this effort to make the nuclear security enterprise more efficient and to help our contractors to achieve this goal.

C. Eliminating Ineffective Oversight. NNSA agrees that improving and consolidating the audit process would enhance operations throughout the enterprise. Secretary Moniz recently established the Enterprise Assessment Office to consolidate and manage all Departmental independent safety and security assessments in an effort to streamline the number of assessments. Other assessments required by DOE Directives are managed through the Site Integrated Assessment Planning (SIAP) process. Through the planning for the SIAP, NNSA works to de-conflict and eliminate duplicative assessments.

NNSA Field Offices rely on frequent and unfettered communication with M&O partner staff and a strong and transparent Contractor Assurance System (CAS) to form the foundation the oversight relationship with the M&O. The CAS allows for:

- Performance measures which present a dashboard view of operational factors
- An extensive and rigorous program of self-assessments and continuous improvements
- A formal method for tracking and reporting contract requirements and deliverables
- A lessons learned program to capture and institutionalize best practices
- Risk identification and management protocols
- A performance feedback and improvement system
- A lean six sigma quality improvement program
- An internal audit function for both financial and programmatic audits

C. Rebuilding the Partnership between NNSA and M&O Partners. The single most powerful tool to improve morale, culture, and performance in the nuclear security enterprise is to rebuild the trust and strategic partnership between NNSA and the M&O Partners. This will take commitment and compromise, trust and teamwork on everyone's part. Secretary Moniz has implemented several reforms to improve the strategic partnership, and is leading the way in the strategic planning and the performance evaluation processes to ensure a more strategic, M&O-influenced, and integrated process.

Recent reforms at NNSA have aided in reinvigorating the strategic dialogue including:

- A demonstrated commitment from the NNSA Administrator and Principal Deputy Administrator to travel to the sites frequently to engage with Laboratory, Plant, and Federal Field leadership and staff.

- Creation of the NNSA Council where the NNSA Administrator and other senior NNSA Federal Leadership meet quarterly with the laboratory directors and plant managers to discuss strategic direction and resolve issues.
- Establishment of the NNSA Operations Board where NNSA senior Program Managers, Field Office Deputy Directors, and M&O Chief Operating Officers meet quarterly to improve coordination and collaboration across the nuclear security enterprise.
- Increased frequency and improved timeliness in providing quarterly performance feedback to M&O leadership by the NNSA Principal Deputy Administrator.
- Direct reporting from the NNSA. In 2014, the NNSA Administrator expanded his weekly NNSA leadership meeting to include all Field Office Managers.
- Frequent meetings between NNSA Field Office Managers and M&O leadership at their respective sites.

These examples highlight the actions that NNSA/DOE have taken to maximize M&O contribution by taking a graded, tailored approach to contract performance incentives; engaging M&O parent organizations; reducing unnecessary transactional assessments; and rebuilding trust.

5. Strengthen Customer Collaboration to Build Trust and a Shared View of Mission Success

Panel Recommendations

- 18. The Secretary should collaborate with the Secretary of Defense to better align the planning, resourcing, and execution of sustainment and modernization programs for nuclear weapons and their supporting infrastructure with DOD's delivery platforms.*
- 19. The Secretary and Director should align and streamline processes for collaboration with interagency customers.*

Overview

Over the last few years, the pace of the life extension programs has expanded, the challenges of aging manufacturing facilities became more significant and urgent and the considerable challenges of maintaining the stockpile without explosive nuclear testing became clear. During this time, the relationship between DoD and NNSA became strained. The tension was exacerbated by significant budget pressures and misunderstandings about the roles and responsibilities of each agency. With the development of the fiscal year 2016 budget request, these tensions abated and the relationship is on a good path. The current relationship is more open, with extensive, detailed and transparent discussions, and a better understanding of what each agency needs to meet the requirements of the nuclear weapons mission.

One of the sources of the problem was the very term —“customer”—that the panel uses in the title of chapter 5. This view that DoD is a customer actually led to misunderstandings. Both agencies have moved to a more complete understanding of the relationship, their respective missions and the role of the Nuclear Weapons Council (NWC). DoD establishes the military requirements of the nuclear weapons. NNSA has its own separate mission to ensure that the technology and scientific base is fully capable of maintaining a safe, secure, reliable and effective stockpile. This responsibility includes the independent ability to certify annually the reliability of the weapons. NNSA continues the tradition of the Atomic Energy Commission (AEC) to ensure that weapons surety is a primary consideration in all LEPs.

The NWC-approved acquisition process, also known as the 6.x process, develops the scope and costs associated with the LEPs. NNSA and the DoD are committed to ensuring that this tried and true process retains its rigor and that corners are not cut. NNSA, through its CEPE organization and associated program cost organizations, is committed to ensuring that the costs for the LEPs are more accurate as it builds a historical cost database. The 6.x process will inform and enable the panels’ recommendations to “coordinate budget development for the relevant portions of the warhead and strategic systems budgets.”

Chapter 5 of the report also discusses the relationships that DOE/NNSA has with its interagency partners, the Departments of Defense, State, Homeland Security and the Intelligence Community, outside of the nuclear weapons work. The scientific, engineering and manufacturing skills that the NNSA laboratories and facilities bring to the Nation have improved conventional warfighting and other capabilities of the DoD and the Military Services. In addition, these capabilities have also improved the wide range of activities that support the national goal of preventing, countering and responding to nuclear proliferation and terrorism. Support to the Intelligence Community has enabled unique in-depth analysis of various foreign activities, developments, and trends. This work, accomplished mostly through the Strategic Partnership Program (formerly Work For Others), allows the interagency to benefit from the special skills resident in the NNSA complex, while allowing the NNSA complex to grow and refine its own mission skills. This work also allows a measure of creativity, not otherwise found outside of the NNSA LDRD program, and helps in the effort to recruit and retain the best engineers and scientific and technical talent for the complex.

The DOE/NNSA labs and facilities bring unique capabilities to solve the problems of the interagency, but the challenge of the strategic partnership program, as the panel identified, lies in the generally piecemeal nature of the work. The Mission Executive Council (MEC) was established to bring a more strategic understanding of the capabilities needed for the labs and facilities to serve the agencies’ missions. Unfortunately, budget pressures on individual agencies have led to the inability of the MEC to deliver this strategic approach, but in time, if budgets allow, the goals of the MEC could be realized. While DOE/NNSA is committed to the future success of the MEC, further development of this strategic concept is required, as well as the involvement and commitment of the agencies for which the NNSA facilities perform their good work.

Specific Comments

A. Strengthened Program Alignment with DoD. NNSA's goal is to provide confidence to the White House, Congress, DoD and the Nation that requirements and priorities communicated through the NWC mechanism will be accomplished effectively and within established program parameters, taking into account budgetary challenges. As an example, in the fall of 2014, NNSA's national security laboratories were charged to investigate and determine the need to refresh W88 conventional high explosives (CHE). NNSA worked closely with DoD, through the NWC, to define the scope and costs needed to resolve the issue, which is reflected in the fiscal year 2016 budget request.

Mechanisms are currently in place to foster daily communications, information sharing, and transparency between the DoD and NNSA on NWC-related activities. NWC executive action officers meet and interact regularly, acting on behalf of their respective members, on all NWC-related business. Additionally, respective weapon-system project officer groups (POG), meet regularly to deliberate on technical weapons and related delivery platform issues that affect the health and welfare of the nuclear stockpile.

The NWC develops an annual joint memorandum to the President, signed by the Secretaries of Defense and Energy, certifying that the stockpile is safe secure and reliable and whether explosive nuclear testing is needed. Each of the laboratories and the US Strategic Command (STRATCOM) submit their independent assessments with the memorandum.

In an effort to improve the process, during the upcoming annual assessment cycle, NNSA will arrange a briefing by the three laboratory directors and the STRATCOM Commander for the NWC on their respective assessment letters and offer a briefing by the laboratory directors to the Secretary of Defense.

NNSA has taken tangible steps to promote a cooperative relationship with our DoD partners. Specific examples include invitations to program workshops on Tritium Demand/Production, continued collaborations with the Navy on W88 CHE refresh, collaboration with the Air Force on LRSO, open invitations to NWC members and support staff on 90-day conceptual studies, and quarterly program reviews for LEPs. We work closely together to develop and deliver key annual reports to Congress and the President, including the Section 1043 Report, the Stockpile Stewardship and Management Plan, the NWC Chairman's Annual Report to Congress, the Joint Surety Report, the Nuclear Weapons Stockpile Plan, and the aforementioned Report on Stockpile Assessments. Additionally, NNSA continues to work collaboratively with DOD and OMB each year to make sure the President's Budget requests are properly aligned with the President's nuclear weapons policy and priorities.

These collaborative efforts are essential to ensuring that DOE/NNSA is doing everything possible to meet the Nation's nuclear deterrent objectives.

B. The Mission Executive Council. The Mission Executive Council (MEC) is an Under Secretary-level body that focuses its efforts on improving interagency strategic planning for the science, technology, and engineering (ST&E) capabilities resident in DOE's laboratories and sites that are of cross-cutting strategic national security interest. NNSA's Office of Strategic Partnership Programs is responsible for reviewing the execution of interagency work including identifying opportunities to improve the overall strategic process. The MEC is improving planning and coordination of key national security areas based on a process of identifying technical issues, assessing existing capabilities, then developing a strategic plan to address gaps. In addition, initiatives such as the DOE's Strategic Approach to Work for Others Study, comprised of the national laboratories, DOE's Office of Science and Energy, and NNSA, created a Community of Practice for discussing collaborative mechanisms and additional improvements. Current members of the Community of Practice routinely engage with the MEC, taking advantage of opportunities to leverage existing efforts and include MEC input.

The MEC has not been as successful as originally anticipated for a variety of reasons, but primarily as a result of budgetary pressures. While DOE/NNSA is committed to the future success of the MEC, further development of this strategic concept is required, as well as the involvement and commitment of the agencies for which the NNSA facilities perform their good work.

IV. Conclusion

NNSA appreciates the Panel's in-depth analysis of the nuclear security enterprise, and recognizes the challenges that lie ahead. NNSA is committed to working with the Administration, Congress, our partners, and other stakeholders to address these challenges, as well as the Panel's recommendations, in a comprehensive and transparent manner. The actions DOE and NNSA have already completed are key to governance reform and consistent with the Panel's recommendations, but there is much more to be done. Ensuring world-class science and technology, in partnership with our laboratories, and collectively improving our management performance through creative solutions, will enable the nuclear security enterprise to cost-effectively achieve our vital national security mission, but it will take time and the partnership of our stakeholders and partners.

Appendix: Full Set of Recommendations from the Congressional Panel on the Governance of the Nuclear Security Enterprise⁴

Strengthen National Leadership Focus, Direction, and Follow-Through

The President should provide guidance and oversight sufficient to direct and align nuclear security policies, plans, programs, and budgets across Departments.

- 1.1. The President should reaffirm the importance of the mission and align DOE&NS and DOD priorities through an expanded President's annual stockpile guidance.
- 1.2. The President should require annual OMB joint budget reviews to shape and align DOE&NS and DOD programs and budgets.
- 1.3. The President should require annual NSC joint program reviews to shape and align DOE&NS and DOD programs and policies.

Congress should establish new mechanisms to strengthen and unify its leadership and oversight of the nuclear enterprise and its missions.

- 2.1. Congress should add Senate Armed Services Committee approval to the confirmation and reporting requirements for the Secretary and Deputy Secretary of DOE&NS (and continue to have the Director, ONS be approved by the Senate Armed Services Committee).
- 2.2. Congress should require the Secretary to testify annually on the health of the enterprise, and on progress in reforming its governance, to the Senate Energy and Natural Resources and Senate Armed Services Committees and to the House Energy and Commerce and House Armed Services Committees.
- 2.3. Congress should implement information sharing and collaboration mechanisms to unify and strengthen its mission-focused oversight across cognizant committees and to better harmonize direction and oversight across the enterprise's mission areas.

⁴ Table of Recommendations, *A New Foundations for the Nuclear Enterprise*, Report of the Congressional Advisory Panel on the Governance of the Nuclear Security Enterprise, November 2014, pages xlix-xxiv.

Solidify Cabinet Secretary Ownership of the Mission

Congress should amend the NNSA Act and related legislation to clarify Departmental leadership roles. The Secretary “owns” the nuclear enterprise missions, sets Departmental policy for the nuclear enterprise, and is accountable to the President and Congress for the enterprise. The Director, Office of Nuclear Security (ONS) has full authority to execute the nuclear enterprise missions consistent with the Secretary’s policy. Departmental missions-support staffs advise and assist the Director in executing enterprise missions.

- 3.1. The amended legislation should specify the Secretary’s leadership responsibilities and define duties that underscore the Secretary’s accountability for the nuclear enterprise and its missions.
- 3.2. The amended legislation should create the Office of Nuclear Security (ONS) within the Department to perform the missions currently assigned to NNSA.
- 3.3. The amended legislation should designate a Director, Office of Nuclear Security with full authority to execute nuclear enterprise missions under the policy direction of the Secretary. The Director should have tenure of at least six years, be compensated at the rate of executive Schedule Level II, and hold the Departmental rank of a Deputy Secretary or Under Secretary.
- 3.4. The amended legislation should assign risk acceptance authority and accountability to the Director for ONS mission execution.
- 3.5. The amended legislation should grant the Director authority to appoint senior officials in ONS, including the conversion of three of the Senate-confirmed direct-report positions (Principal Deputy, Assistant Secretary for Defense Programs, and Assistant Secretary for Non-Proliferation Programs) to Senior Executive Service or Excepted Service positions.
- 3.6. The amended legislation should emphasize the importance of the nuclear enterprise missions, by changing the name of the Department to the “Department of Energy and Nuclear Security.”

The Secretary should implement Departmental management processes that specify the Director’s authorities for executing nuclear enterprise missions. These authorities include: Line management authority for the safe, secure, and environmentally responsible execution of nuclear security missions; Management authority for missions-support staffs assigned to the Office of Nuclear Security; Concurrence authority for Departmental rulemaking on ONS matters.

- 4.1. The Secretary should establish decision-making practices among the senior headquarters staffs that codify the Director’s authority to execute the nuclear security missions consistent with the Secretary’s policies.
- 4.2. The Secretary should establish a matrix management structure that: Aligns and codifies roles, responsibilities, authority, and accountability; Specifies the

Director's leadership authority over line-management and mission-support ("functional") staffs assigned to ONS; Eliminates overlapping headquarters staff.

- 4.3. The Secretary should adopt processes defining the Director's role in ensuring applicable DOE&NS policies, rules, and orders are compatible with the operating circumstances of the nuclear security enterprise.
- 4.4. The Secretary should designate those senior headquarter positions that have line-management decision authorities and those that are responsible for mission-support functions.

The Secretary and Director should reform DOE regulation to strengthen risk management.

- 5.1. The Secretary should strengthen the Department's analytical expertise and processes for assessing risks, especially for nuclear and other high-hazard functions.
- 5.2. The Secretary should direct a comprehensive review and reform of the Department's ES&H and Security Orders and Directives to reflect best industry practices.
- 5.3. The Secretary (with Congressional concurrence) should establish a mechanism to improve the Department's ability to respond to inquiries, findings, and recommendations of the Defense Nuclear Facility Safety Board.

Adopt Proven Management Practices to Build a Culture of Performance, Accountability, and Credibility

- 6. To begin reforming the DOE&NS culture, the Secretary and Director should develop within six months a plan for continuous management learning and improvement, including an implementation plan for the panel's recommendation with milestone target dates.
 - 6.1. The Secretary and Director should urgently develop a more robust, integrated DOE&NS/ONS-wide process to provide accountability and follow-up on findings and recommendations from studies and reviews, both internal and external.
 - 6.2. The Secretary and Director should establish management metrics for assessing and improving enterprise management.
 - 6.3. The Secretary and Director should routinely survey personnel to gauge morale, assess cultural changes, and identify the results of efforts to change management practices.
 - 6.4. The Secretary and Director should aggressively communicate reform plans and objectives.
- 7. The Secretary and Director should implement industry best practices for shaping and building the enterprise workforce.

- 7.1. The Secretary and Director should establish strong career and leadership development programs, require rotational assignments, and place greater emphasis on continuing education and professional certifications.
 - 7.2. The Secretary and Director should reshape staffs as needed to implement governance reforms.
 - 7.3. The Secretary and Director should conduct a zero-based personnel review to right-size government staffs consistent with recommended reforms and changing workload since the end of the Cold War; this review should include the consolidation of headquarters activities across DOE&NS's Forrestal headquarters, the Germantown campus, and the Albuquerque complex.
8. The Secretary should establish trusted Cost Analysis and Resource Management staffs, tools, and data; the Director should be responsible for this process for ONS.
- 8.1. The Secretary and Director should strengthen the Department's efforts to develop independent cost and resource analysis capabilities.
 - 8.2. The Secretary and Director should employ a rigorous Analyses of Alternatives process during program formulation as the basis for assessing and validating program requirements.
 - 8.3. The Secretary and Director should take advantage of established DOD resource analysis capabilities in establishing DOE's cost analysis and resource management capabilities.
9. The Director should establish a simple, clear line-management operating structure that both synchronizes activities across programs, mission-support functions, and operating sites and provides leadership focus for key programs.
- 9.1. The Director should create operational mechanisms to perform the key synchronization functions that used to be performed by the Albuquerque Operations Office.
 - 9.2. Deputy Directors should be designated to lead in the integrated planning and execution of programs in their mission areas of responsibility.
 - 9.3. The Deputy Director responsible for Life Extension Programs, working with DOD, should create a long-term operating plan to support the nation's warhead modernization strategy; this plan should be designed to create a relatively stable, long-term workload.
10. The Director should establish program managers who are provided necessary authorities and resources, and who are held accountable for major mission deliverables.
- 10.1. The Director, in coordination with the responsible Deputy Director, should designate program managers for each Life Extension Program and major construction project.

- 10.2. Program managers should be held accountable to employ effective management practices.
 - 10.3. The Director should delegate to the program managers control of any funds identified as uniquely required to execute their programs.
 - 10.4. The Director should delegate control over personnel assigned to their programs to the program managers.
11. The Congress, Secretary, and Director should adopt a simplified budget and accounting structure (by reducing budget control lines) that aligns resources to achieve efficient mission execution while providing sufficient visibility to enable effective management oversight.
- 11.1. Congress should reduce the number of Congressional budget control lines to the number of major programs plus major mission-support functions.
 - 11.2. The Director should reduce ONS's internal budget control points to the minimum number needed to assign funding for major programs and mission-support activities across the sites.
 - 11.3. Infrastructure funding that is uniquely required for the execution of Life Extension Programs should be integrated into the portfolio of the Deputy Director for Defense Programs.
12. The Director should develop a strategy and plan to reshape the weapons complex to meet future needs.
- 12.1. The Director should ensure that the strategy and plan identify and addresses the deferred maintenance backlog.
 - 12.2. The Director should ensure that the strategy and plan match (and, in many cases, reduce) the infrastructure needed to meet requirements.
 - 12.3. The Director should ensure that the strategy and plan identify investments in the needed skills in the workforce.
 - 12.4. The Director should ensure that the strategy and plan specify investments in capabilities, including the sites' use of internally directed research and development. The panel recommends Laboratory Directed Research and Development (LDRD) funding of no less than 6 percent, which is needed to sustain leadership in nuclear science, engineering, and manufacturing.
13. The Secretary and Director should continue ongoing efforts to improve construction project management capabilities (at all levels) by introducing disciplined management practices in order to recapitalize infrastructure on time and on budget.
- 13.1. The Director should strengthen infrastructure project management skills, tools, and the collection and analysis of data.

- 13.2. The Director should build on recent efforts to adopt best practices for managing infrastructure projects, especially the use of external peer review.
- 13.3. The Secretary and Director should hold managers accountable for adopting the effective practices detailed in the Department's directive on project management (Order 413), consistent with the principles provided in OMB Circular A-11 in infrastructure projects.

Maximize the Contributions of the Management and Operating (M&O) Organizations to the Safe, Secure Execution of the Mission

- 14. The Director should reform M&O contracts, replacing the award fee structure with fixed fees for longer (multi-year) award terms and linking performance incentives to the contractual period of performance.
 - 14.1. The Director should adopt market-based fixed fees for new M&O contracts commensurate with M&O-borne risks, M&O investments in the enterprise, and the scale of the undertaking.
 - 14.2. Where practicable, the Director should convert existing contracts to similar fixed fee arrangements.
 - 14.3. The Director should base decisions to extend an M&O contract's period of performance primarily on contributions to mission performance; unsatisfactory performance should lead to early termination.
 - 14.4. The Director should seek greater standardization of contract provisions across similar entities.
- 15. The Secretary and Director should reinforce the M&O parent organizations' obligations to contribute to enterprise management improvement initiatives.
 - 15.1. The Director should create collaborative mechanisms to strengthen the joint contributions of the M&O organizations in improving the effectiveness and efficiency of enterprise operations.
 - 15.2. The Director should task M&O organizations to identify and assess management improvement opportunities, both for mission execution and for mission-support functions.
- 16. The Secretary and Director should eliminate wasteful and ineffective transactional oversight.
 - 16.1. The Secretary and Director should direct a reduction in the number of audits, inspections, and formal data calls, and better synchronize those that remain.
 - 16.2. The Secretary and Director should eliminate transactional oversight in areas where there are better mechanisms for certifying contractor performance, to include reform of the field office's staffing levels and performance criteria.

17. The Secretary, Director, and the National Laboratory Directors should adopt management practices that serve to rebuild the strategic Government-FFRDC relationship.

- 17.1. The Secretary and Director should continue to reinvigorate the strategic dialog with the Laboratory Directors.
- 17.2. Leaders in both the government and M&Os should prescribe and enforce behaviors that rebuild credibility and trust.
- 17.3. The appropriate government officials (e.g., Deputy Directors, project managers) should meet at least monthly with the M&O leadership, and preferably have daily informal interactions.

Strengthen Customer Collaboration to Build Trust and a Shared View of Mission Success

18. The Secretary should collaborate with the Secretary of Defense to better align the planning, resourcing, and execution of sustainment and modernization programs for nuclear weapons and their supporting infrastructure with DOD's delivery platforms.

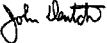
- 18.1. The Department Secretaries should direct activities that foster collaboration and communications among the principals and staffs supporting the Nuclear Weapons Council (NWC).
- 18.2. The Department Secretaries, supported by the chairman and members of the NWC, should reinvigorate its working-level elements.
- 18.3. The Department Secretaries should establish transparent information sharing mechanisms and increase direct staff collaboration on a daily basis to address persistent communications and trust issues.
- 18.4. The Department Secretaries should confer on each Department's proposed co-chair to the Standing and Safety Committee (SSC), which reports to the NWC.
- 18.5. The Department Secretaries should involve the NWC in drafting and reviewing the annual assessment to the NSC of progress on meeting Presidential guidance.
- 18.6. The Director should strengthen the roles, responsibilities and accountability of the senior military officer assigned to ONS in order to improve DOE&NS-DOD collaboration.

19. The Secretary and Director should align and streamline processes for collaboration with Interagency customers.

- 19.1. The Secretary, working through the Mission Executive Council, should improve coordination for planning and executing of Interagency Work.
- 19.2. The Mission Executive Council should annually conduct a review of the execution of Interagency Work across the nuclear security enterprise to identify improvement opportunities in working relationships, collaborative mechanisms, and management practices.

SECRETARY OF ENERGY ADVISORY BOARD

MEMORANDUM FOR: SECRETARY OF ENERGY

FROM: John Deutch 
Chair, Secretary of Energy Advisory Board (SEAB)

CC: Deputy Secretary of Energy and SEAB Members

DATE: February 17, 2015

SUBJECT: SEAB comments on the Report of the Congressional Advisory Panel on the Governance of the Nuclear Security Enterprise

You requested that your Secretary of Energy Advisory Board review the recent *Report of the Congressional Advisory Panel on the Governance of the Nuclear Security Enterprise* (Augustine-Mies Panel) and give you its opinion about how the department should respond to the advisory panel's recommendations.¹ This letter report, prepared by six members and approved by the board, transmits our views.²

Congress established the Augustine-Mies Panel and charged it to address the many concerns that have existed for some time about impediments to the NNSA performing its vital national security mission of maintaining the nuclear weapons stockpile, advancing U.S. nonproliferation policies and programs, and supporting the nuclear navy. The concerns are wide-ranging and include cost and performance of the weapons program, maintaining the morale and quality of the technical staff, avoiding cost overruns of major projects, and reducing program management and direction from NNSA that encourages risk avoidance, excessive control, and inadequate attention to program outcomes.

The Augustine-Mies Panel was directed to examine alternative models that would enable

¹ *A New Foundation for the Nuclear Enterprise*, Report of the Congressional Advisory Panel on the Governance of the Nuclear Security Enterprise, co-chaired by the Honorable Norman Augustine and Admiral Richard Mies, USN (Ret.), November, 2014.

² The six SEAB members are: Brent Scowcroft, Chair SEAB Nuclear Security Subcommittee, Al Carnesale, John Deutch, Steven Koonin, Richard Meserve, and Ellen Tauscher.

transformation and dramatic improvement in the DOE/NNSA enterprise. The Panel considered four different models: (a) maintaining the current somewhat ambiguous quasi-independent status of the NNSA within DOE, (b) recreating the NNSA as an independent agency, (c) transferring responsibility for the NNSA to the Department of Defense, and (d) moving from a separately organized NNSA within DOE to a new Office of Nuclear Security, ONS, integrated into a DOE that is led by a cabinet secretary who is committed to and knowledgeable about nuclear security issues. The Director of ONS would be given substantial authority and responsibility for implementing the department's nuclear security program.

The Augustine-Mies Panel recommends the last option: integrating a new ONS into DOE with an obligation that DOE leadership, the secretary and deputy secretary, have knowledge and commitment to the nuclear security responsibilities of the department.

The members of SEAB, many of whom have deep experience with DOD and DOE, unanimously and strongly agree with the Augustine-Mies Panel that a new ONS should be integrated into DOE and that the leadership of DOE should have knowledge of, and commitment to, the nuclear security responsibilities of the department. SEAB stresses that the consequence of taking no action risks continuing deterioration of DOE's ability to fulfill its national security mission and the morale throughout the complex. We urge you to encourage the administration and Congress, vigorously and vocally, both publicly and within the DOE/NNSA community, to endorse the Panel's constructive approach and implement the needed legislative change to the DOE Organization Act.

SEAB believes you demonstrate that there are individuals who can provide the kind of secretarial leadership that is needed to make *A New Foundation for the Nuclear Enterprise* a success, and your example was not insignificant in bringing the Panel to its organizational recommendations.

The Panel helpfully proposes in Appendix C of their report changes to the language in the 2000 statutory amendment establishing the NNSA in the 1977 DOE Authorization Act.

SEAB believes that these changes are directionally correct; however balance with the energy mission should not be forgotten. Several of the Panel's suggestions are intended to underscore the importance of national security, especially the nuclear weapons program, in the department missions. Suggestions such as changing the name of the department, requiring both the Armed Services and Energy and Natural Resources Committees to confirm the Secretary and Deputy Secretary, establishing qualifications of the president's nominees for these positions, and extending the term of the Director of ONS are sure to provoke considerable debate. We did not discuss the pros and cons of these suggestions but are prepared to do so if you believe it would be useful to have SEAB's opinion.

The Augustine-Mies Panel does a thorough job of identifying changes that are needed to bring their vision of a *New Nuclear Enterprise* into a reality. The Panel presents a daunting list of 65 recommendations organized into five broad categories. Those with senior government management experience (and many members of the Panel have such experience) will recognize that the phrases in these recommendations such as "The Secretary should..." or "the Director of ONS should..." do not indicate an immediate way forward to implementation. It will take more than a few years to achieve the result the Augustine-Mies Panel seeks. The Panel lists 15 useful indicators of progress in the desired realignment and suggests a follow-on evaluation in two years; SEAB suggests you might consider establishing a process to report semi-annually to Congress on the progress made in implementing the recommendations.

SEAB wishes to offer remarks on five issues that the board believes deserve your special attention.

- o The DOD is the main customer for DOE's weapons technology and products. The Nuclear Weapons Council is the principal mechanism for harmonizing requirements and resources that define an executable five-year plan. The Panel identifies current weakness in this mechanism, but stops short of recommending a high-level, DOD executive who has experience and expertise in the weapons complex to support the Council and to manage the DOD's role in the day-to-day matters between the two

agencies. If the principal customer and the supplier of defense programs are not in agreement about requirements and resources, it is inevitable that differences will be resolved by less qualified individuals and result in adoption of a less sound program with unsatisfactory cost and performance outcomes.

- The Panel gives a thorough and telling account of the breakdown in the working relationship between the NNSA and its M&O contractors. It is basically a story of a change from a mission and outcome driven FFRDC orientation to an excessive transactional, cost minimization, and risk avoidance orientation. But in our view the Panel falls short in suggesting convincing, concrete steps that will reestablish the credibility and trust between the government and the M&O contractors.

The Panel recommends a shift from reliance on award fees to fair fixed fees with contract renewal and extension as the main mechanism to reward or penalize contractor performance. SEAB agrees that too much reliance has been placed on the award fee as a performance incentive tool but doubts the change recommended by the Panel is sufficient to reestablish an FFRDC relationship.

The SEAB National Laboratory Task Force believes that in addition, more attention needs to be placed on restoring clarity and non-overlapping responsibility and accountability for programmatic, functional, and financial activities among the various stakeholders: NNSA headquarters, field sites, M&O contractors, and laboratory management. In short, there is no sure formula for reestablishing an effective and collaborative working relationship, but as the Panel's report makes clear, doing so remains a key objective.

- The Panel makes many important suggestions about improving operations at the laboratories and planning for necessary infrastructure modernization and renewal. While the Panel acknowledges the importance of human capital in one of its recommendations, SEAB believes that substantially more attention should be paid to improving the morale and creative atmosphere at the weapons laboratories and the

production facilities.³ The tension that has existed between the NNSA and M&O contractors is corrosive to maintaining the technical excellence that is the essential underpinning of the laboratory capability. Finding and keeping the most talented employees is the responsibility of every part of the management chain, especially the laboratory leadership. The Panel recognizes the importance of the Laboratory Directed Research & Development (LDRD) program for this purpose and endorses a funding level no less than 6%; SEAB agrees.

- SEAB believes there is significant opportunity for greater programmatic connections between the NNSA and the other DOE science/energy national laboratories that would further the integration objective advanced by the Augustine-Mies panel. Areas where increased collaboration has promise are high performance computing, nuclear physics, fusion, and materials science.
- The unique skills of the nuclear security laboratories are important to other agencies: including the Department of Defense, the Department of State, the Department of Homeland Security, and the Intelligence Community. This work for others, WFO, is growing at the labs and presents management challenges: the non-DOE agencies pay for a portion of the project cost, but not as a general matter the investment necessary to maintain the intellectual and physical infrastructure of the laboratories; a need to assure that the work does not interfere with the fulfillment of the labs weapons mission; and confirmation that the work is consistent with the laboratory's mission. Non-DOE customers object to the cost, the complex and long approval process, and delays in completion of the work.

Congress clearly intends that the laboratories contribute to a broad range of national security missions and provide assistance to the non-DOE agencies. The Mission Executive Council (MEC) was launched by agreement among the principals of the affected agencies to facilitate coordination among the group so that the laboratories

³ The Panel Recommendation 12.3 is: "The Director should ensure that the strategy and plan identify investments in the needed skills in the workforce. There needs to be an analysis of the level and skill mix of the workforce necessary to meet future requirements, and an assessment of the steps required to recruit and retain them."

could serve this broader mission. The Panel notes that the MEC has not been fully effective to date and makes recommendations to improve its functioning. While DOE shoulders the central responsibility for assuring the health of the laboratories, their management and funding, we agree that the Secretary of Energy and the Director of the ONS should revitalize the MEC as a means for improving coordination among the agencies. The aim should be to assure that the agencies are aware of the special capabilities of the labs and that the laboratories are aware of the emerging challenges confronting the agencies. We understand that the National Academies have prepared a report for NNSA that explores these issues more fully.

SEAB strongly supports the Augustine-Mies report and we stand ready to receive further tasking from you to assist the department in this important realignment process.



U.S. DEPARTMENT OF
ENERGY

**Departmental Response to the
Final Report of the
Commission to Review the
Effectiveness of the National
Energy Laboratories**

**Report to Congress
February 2016**

**United States Department of Energy
Washington, DC 20585**

Message from the Secretary

The Department of Energy (DOE) is, at its core, a science and technology organization that advances critical missions for the American people: nuclear security; scientific leadership and discovery; clean energy innovation and energy security; emergency response; technology transfer; and environmental remediation. DOE's National Laboratories are key to mission success across the broad spectrum of DOE's responsibilities.

The National Laboratories comprise the most comprehensive research network of its kind in the world, and they are essential links in the Nation's innovation chain. Each has distinctive capabilities; together, they are greater than the sum of their parts. Individually and collectively, the Labs conduct cutting-edge fundamental and applied scientific research, develop problem-solving technologies, and are one of the Nation's most effective "on call" resources for tackling unprecedented challenges – from the threat of unsecured nuclear materials as the Soviet Union collapsed, to the Macondo oil spill in the Gulf of Mexico, to the Fukushima nuclear disaster, to deep and rapid scientific analyses for the Iran nuclear negotiations.

The National Laboratories are an indispensable part of the American research enterprise, creating knowledge at the scientific frontier and housing major scientific facilities used by over thirty thousand university, laboratory and industry researchers annually. Core enabling technologies – such as high performance computers and modeling of complex physical systems and particle accelerators – are continuously pushed to new heights. In addition, completely new directions are established for the research community, such as launching human genomics and then developing the genomics field for energy. In turn, these advances have contributed greatly over many decades to ensuring the competitiveness of U.S. industry and of the broader economy. Well over a hundred science Nobel Prizes have been directly associated with DOE National Laboratory research.

The labs also have helped spark the energy revolution, from early work on drilling technologies and basin characterization for shale gas to materials discovery, advanced manufacturing techniques, and other research that has driven down the cost of wind and solar, batteries and LEDs, and continues to do so.

And of course the labs are core national security assets, sustaining the nuclear deterrent without testing, securing dangerous nuclear materials worldwide and propelling the nuclear

Navy, and providing critical technology and analysis for the Departments of Defense and Homeland Security and the intelligence community.

These unique and invaluable capabilities must be developed, sustained, and nurtured over decades. Sound stewardship of the laboratories has been one of my highest priorities as Secretary. Top talent must be attracted and retained by providing a vibrant research environment focused on challenging problems that call upon multidisciplinary teams integrating scientific, engineering, and management expertise.

This stewardship and further strengthening of the National Lab enterprise is both a major responsibility of and opportunity for DOE in service of the national interest. Recognizing that success in this endeavor has vital national consequences and meets critical national needs, Congress directed formation of the Commission to Review the Effectiveness of the National Energy Laboratories (CRENEL).

I thank the Commission for its conscientious and serious work. In formulating its recommendations, the Commission visited all 17 DOE National Laboratories, interviewed staff in more than 100 offices across government and other sectors, and heard testimony by 85 witnesses at public Commission meetings. There is no doubt that the Commission's findings and recommendations are thoroughly researched and a testament to the leadership of its Co-Chairs, Jared Cohon and TJ Glauthier. The Department has carefully considered each of the Commission's findings and recommendations in formulating this response.

In addition, I have asked for input from the National Laboratory Directors' Council (NLDC), which is comprised of the Directors of all 17 National Laboratories, and the Secretary of Energy Advisory Board (SEAB), a Federal Advisory Committee of experts outside the Department that provides advice to me on key issues. Both have provided me with thoughtful views to help shape our response to the CRENEL report; their feedback is attached to this Departmental response.

A central finding of the Commission reinforces the unparalleled value of the National Laboratory system to the Nation, serving as a science and technology powerhouse, and occupying a critical role that cannot be carried out solely by universities or the private sector. However, the report also notes that since the end of the Cold War, oversight by DOE has grown increasingly transactional rather than strategically mission-driven. One of my priorities as Secretary has been to reset this critical relationship – to improve the strategic partnership between the Department and the National Laboratories and, in emphasizing an enterprise-wide

approach to the lab system, to help maximize their unique role in the Nation's innovation ecosystem.

The Commission also recognized the importance of an overarching strategic approach for the laboratories. Steps that I have taken in recent years to underscore the value of such an approach include:

- reorganizing the Department to integrate and better coordinate basic research and applied energy programs under a single Under Secretary for Science and Energy;
- establishing a Laboratory Policy Council and a Laboratory Operations Board to convene a senior-level strategic dialogue on key priorities and improve the effectiveness and efficiency of the laboratories' execution of the DOE mission;
- strengthening project management, including by establishing a Project Management Risk Committee, restructuring the Energy Systems Acquisition Advisory Board, and reinforcing the independent peer review process;
- launching cross-cutting research initiatives that involve coordinated efforts between DOE and multiple laboratories;
- creating an annual Big Ideas Summit that convenes lab scientists and Departmental program leadership to generate new mission-related research challenges of importance to the Nation;
- initiating an integrated approach to cyber issues through the establishment of the DOE Cyber Council, in which the labs are called upon to play a significant role; and
- inaugurating a Technology Commercialization Fund for National Laboratory collaboration with the private sector on energy technology development.

Not only do these and other changes make it possible for the labs to become engaged in providing substantive input about research directions for the Department, but also they have helped to form networks of labs with complementary capabilities to deliver results. All of these steps have been focused on reinvigorating the strategic partnership necessary for effective stewardship of the laboratories as Federally Funded Research and Development Centers (FFRDCs).


The Commission's report appropriately focuses on the importance of the FFRDC model in providing an environment in which DOE sets the mission needs and provides oversight, while the managing contractor and laboratory leadership and staff put together the teams and structure programs in response to the mission needs, all in the public interest. The CRENEL effort has contributed to our re-examination of the management framework for the National

Laboratory system and how it can best serve the public interest. In addressing the Commission's findings and recommendations, the Department's response articulates and defines core objectives that embody this concept of lab management and stewardship. These objectives, along with the related recommendations from the Commission, are as follows:

- Identify and provide necessary resources by conducting rigorous, comprehensive strategic planning across DOE, to include the laboratories in the process (Recommendations 1, 20)
- Assist Congress in its role of reviewing the laboratories by promoting greater transparency with Congress and the taxpayer (Recommendations 1, 2, 30, 36)
- Implement laboratory stewardship through partnership (Recommendations 2, 3, 4, 6, 9, 12, 21)
- Clarify roles and responsibilities (Recommendations 5, 10, 11)
- Improve the development and implementation of requirements; improve the laboratory oversight environment (Recommendations 7, 8, 13, 14, 15, 18)
- Improve annual laboratory planning and evaluation (Recommendations 3, 16, 20)
- Manage the laboratories as a system, seeking to achieve maximum benefit for the Nation (Recommendations 17, 19)
- Beyond revising strategic planning, examine procedures to allow laboratories flexibility to maintain excellence in the expertise of research staff (Recommendations 18, 19, and 21)
- Enhance laboratory mission-aligned collaboration with stakeholders and the broader science and technology community (Recommendations 22, 23, 24, 25, 26, 27, 28)
- Continue to develop the Institutional Cost Report (ICR) (Recommendations 29, 30)
- Revitalize laboratory infrastructure, reduce the risk of excess facilities, and improve project management (Recommendations 31, 32, 33, 34, 35)

It is evident that we have a shared vision for a National Laboratory system focused on innovation, partnership, and stewardship that sustains the DOE laboratories as a science and technology powerhouse for the Nation. The CRENEL report, as well as inputs from SEAB and the lab directors, will continue to help guide progress towards this vital imperative.

Sincerely,



Ernest J. Moniz



Departmental Response to the Final Report of the Commission to Review the Effectiveness of the National Energy Laboratories

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1 INTRODUCTION

Congress, through Section 319 of the Consolidated Appropriations Act, 2014 (Public Law 113-76), directed the Secretary of Energy to establish an independent commission known as the Commission to Review the Effectiveness of the National Energy Laboratories (Commission). In the legislation, Congress asked that the Commission review the 17 Department of Energy (DOE) National Laboratories with respect to their alignment with DOE's strategic priorities, duplication, ability to meet current and future energy and national security challenges, size, and support of other Federal agencies. Congress also asked the Commission to consider whether there are opportunities to more effectively and efficiently use the capabilities of the National Laboratories, and to analyze the effectiveness of the use of laboratory directed research and development (LDRD) to meet DOE's science, energy, and national security goals.

The Secretary established the independent Commission in May 2014, and it published its Final Report in October 2015. In its report, the Commission concluded that the DOE laboratories are "a unique scientific resource and national security asset, providing a vital experimental infrastructure to the Nation's research community and sustaining the nuclear weapons expertise crucial to modern American security" and are "a national treasure with the potential to serve the nation now and well into the future." The Commission noted that, while the DOE laboratories serve the Nation well, they could be even more effective and efficient if they and DOE improve their relationship, focusing on the principles of stewardship, accountability, competition, and partnership inherent in the fundamental model of Federally Funded Research and Development Centers (FFRDC).¹ To that end, the Commission offered 36 recommendations for improvement that focus on six key themes.

As reflected in the Message from the Secretary, DOE agrees with the Commission that the DOE laboratories provide unparalleled value to the Nation, serving as a science and technology powerhouse and occupying a critical role that cannot be carried out solely by universities or the private sector. The laboratories produce innovations that spur the Nation's economy, play a critical role in our national security, and serve as a key catalyst for clean energy development

¹ Pursuant to U.S. Code of Federal Regulations, Title 48, Part 35, Section 35.017, "An FFRDC meets some special long-term research or development need which cannot be met as effectively by existing in-house or contractor resources. FFRDC's enable agencies to use private sector resources to accomplish tasks that are integral to the mission and operation of the sponsoring agency. ...FFRDC's are operated, managed, and/or administered by either a university or consortium of universities, other not-for-profit or nonprofit organization, or an industrial firm, as an autonomous organization or as an identifiable separate operating unit of a parent organization."

and climate mitigation strategies. Continued investments in the laboratories, coupled with effective and efficient stewardship, are critical to strengthening and preserving this vital partnership.

2 RESPONSE

DOE's response to the Commission is organized around the six themes articulated by the Commission in its report: (1) recognizing value, (2) rebuilding trust, (3) maintaining alignment and quality, (4) maximizing impact, (5) managing effectiveness and efficiency, and (6) ensuring lasting change. For those themes, DOE has identified specific objectives which articulate strategic outcomes that DOE seeks to achieve to effectuate its vision of laboratory stewardship and partnership, and to respond to the Commission's findings, conclusions, and recommendations. The response then details those actions that DOE is engaged in, or will commit to execute, to accomplish these objectives.

2.1 RECOGNIZING VALUE

The DOE National Laboratory system consists of 17 laboratories, each with a core mission and core programmatic sponsor at DOE. Of the 17 laboratories, 16 are operated through Management and Operating (M&O) contracts. Some National Laboratories are focused on a single DOE program, while others have a core program that is strengthened by work performed for other DOE programs and sometimes for other government entities (such as DOD or DHS) or private sector partners. DOE uses its laboratories to support and develop its priorities in program areas, and also develops and executes cross-cutting programs across the laboratories.

The Commission notes that a culture of scientific excellence, technical rigor, and mission-focused vision has defined the National Laboratories throughout their history and allowed them to serve the United States time and again. The Commission highlighted the unique and collaborative role that the National Laboratories play in solving highly complex, multi-disciplinary, long-term projects that span the basic sciences to research and development (R&D). This collaboration includes university partnerships, working with other Federal agencies, the private sector, and more than 31,000 academic and industrial scientists who carry out research at DOE's user facilities. More than 100 DOE laboratory-affiliated researchers have been awarded Nobel Prizes, and the National Laboratories have received over 800 R&D 100 Awards since 1962. Given this positive impact, the Commission concluded that sustained Federal support of R&D at the National Laboratories is critical to the future of the science and technology enterprise as well as the Nation's economy and security. By making the laboratory system as efficient as possible and ensuring that it focuses on important endeavors not

otherwise being addressed, DOE can maximize the quality of these R&D accomplishments of the laboratories.

Commission Recommendations

Under the theme “recognizing value,” the Commission provided the following recommendation:²

Recommendation 1: The National Energy Laboratories provide great value to the Nation in their service to DOE’s mission, the needs of the broader national science and technology community, and the security needs of the Nation as a whole. The Administration and Congress should provide the necessary resources to maintain these critical capabilities and facilities. It would also benefit all stakeholders if the key committees in Congress would develop a more orderly process of reviewing the National Laboratories, to replace the unrelenting pace of studies evaluating the performance of the DOE laboratories.

Discussion

DOE agrees with the Commission’s conclusion that the National Laboratories provide great value to the Nation in their service to DOE’s mission, the needs of the broader national science and technology community, and the security needs of the Nation as a whole. The substance of this first recommendation involves actions by DOE and by Congress. While DOE does not have a response to the Commission’s recommendations to Congress, it recognizes that DOE’s actions can facilitate Congressional understanding and evaluation of the laboratories’ contributions and performance.

DOE views the Commission’s recommendation that it provide the necessary resources to maintain the critical capabilities and facilities of the laboratories in the broad framework of a strategic partnership with the laboratories that emphasizes performance. The following principles guide DOE’s efforts to improve this partnership, so that it continues to provide value to DOE and the Nation as a whole:

- Creating an institutional environment with necessary and sufficient Federal oversight that enables laboratories to best serve the public interest with objectivity and independence and take reasonable risk in the pursuit of innovation

² In the body of this report, Commission recommendations are stated in summary form. The full text of Commission recommendations is provided in the Appendix.

- Encouraging laboratory employees to maintain their world-class capabilities and talents in their field(s) of expertise
- Ensuring that laboratories can provide a quick response capability to DOE and its other strategic partners
- Promoting transparency between DOE, the laboratories, the government more broadly, and the public
- Facilitating the ability of the Laboratories to perform cutting edge research for other entities in the national interest

DOE's approach, then, to implementing this recommendation is twofold. First, DOE will continue and enhance its comprehensive planning processes, including involving the laboratories in these planning efforts, to establish strategic direction and priorities, ensuring that DOE makes the most of the available resources. Second, DOE will improve transparency with Congress and with the taxpayer regarding how it is using those resources in the best interest of the Nation. The specific actions described here are intended to meet these two objectives.

Specific Actions

OBJECTIVE: Identify and provide necessary resources by conducting rigorous, comprehensive strategic planning across DOE, to include the laboratories in this process (*Recommendations 1, 20*)

Current Strategic Planning Efforts. DOE currently conducts its strategic planning through the preparation of a series of key studies and documents. They span the range from Administration-wide policy studies to program-specific strategies.

- With respect to DOE's energy programs, the foundational planning drivers for policy and programmatic decisions are the **Quadrennial Energy Review (QER)** and the **Quadrennial Technology Review (QTR)**. They are designed to evaluate the current state of energy-related science and technology, policy, infrastructure, and other energy-linked challenges to the economy, environmental quality, and national security, and identify opportunities and recommendations. The QER is an Administration-wide policy process, led by the White House Domestic Policy Council and Office of Science and Technology Policy. DOE plays a critical role in the QER and is responsible for conducting the analysis, drafting the report, stakeholder outreach, and supporting interagency coordination. Unlike other Federal Quadrennial Review processes where an analysis is done every four years, the QER is conducted through installments to allow for granular analysis of key energy sub-sectors.

The QTR is a planning process specific to DOE. It explores the current state of technologies in key energy sectors and R&D opportunities present in the mid-term. It is intended to frame a blueprint for DOE energy technology development and the enabling science for future technology breakthroughs.

- With respect to DOE's national security responsibilities, the National Nuclear Security Administration (NNSA) produces two comprehensive planning documents that integrate programmatic requirements across laboratories, plants, and sites. The **Stockpile Stewardship and Management Plan (SSMP)** is DOE NNSA's 25-year strategic program of record for maintaining the safety, security, and effectiveness of the nuclear stockpile. The SSMP is published annually, in response to statutory requirements, in report or summary form, to support the President's Budget submission to Congress for Weapons Activities. As recommended by the Secretary of Energy Advisory Board (SEAB) Task Force on Nuclear Nonproliferation, a new report, **Prevent, Counter, and Respond – A Strategic Plan to Reduce Global Nuclear Threats**, articulates for the first time, in a single document, the NNSA programs to reduce the threat of nuclear nonproliferation and nuclear terrorism. As such, it serves as a companion document to the annual SSMP.
- The results from these foundational reports on DOE's energy and national security responsibilities are integrated into DOE's Strategic Plan. DOE's most recent **Strategic Plan for 2014–2018**, published in March 2014, is a comprehensive blueprint to guide the agency's core missions and provides a roadmap for the work of DOE, highlights major priorities, and provides the basis for individual DOE program plans.

Future Laboratory Participation. The National Laboratories are already important partners in the development of DOE's key strategic planning documents. They provide important technical input and expertise that informs DOE's analysis and planning efforts. Each of these documents will be refreshed on a periodic basis to reflect the evolving challenges, technologies, and opportunities facing DOE in the execution of its missions. As part of its efforts to strengthen its partnership with the National Laboratories, DOE will continue to engage with them in developing future updates to these documents.

OBJECTIVE: Assist Congress in its role of reviewing the laboratories by promoting greater transparency with Congress and with the taxpayer (*Recommendations 1, 2, 30, 36*)

Starting in 2016, DOE will begin providing an **annual report to Congress on the State of the Laboratory System**. The purpose of the report will be to describe key initiatives of the National Laboratories, including how the system as a whole is serving the Nation through collective and

cross-cutting activities. It also will articulate DOE's operational successes and continued challenges in stewarding the laboratories, including DOE's status in implementing key actions described in this response. The first of these reports will be more comprehensive, providing a history and background on the National Laboratories and establishing a foundation for future annual updates. Developing the annual updates will be a collaborative effort among the three Under Secretary offices, facilitated by the Laboratory Operations Board (LOB). The annual report will be endorsed by the Laboratory Policy Council (LPC) and issued by the Secretary.

DOE also will continue to conduct **Lab Day on the Hill** events. The first, held in September 2014, included Laboratory Directors and representatives from all 17 National Laboratories and showcased demonstration projects across five theme areas – energy innovation and environmental sustainability, manufacturing innovations, high performance computing, national security, and discovery science. The second, in July 2015, highlighted the National Laboratory system's scientific and technological contributions towards developing America's new energy infrastructure, focusing on: grid modernization, sub-surface science, sustainable transportation, and integrated energy systems. In October 2015, Lab Day focused on the role of the National Laboratories in nuclear nonproliferation, national defense, homeland security and counter terrorism, emergency response, and stockpile stewardship. The next, Science Day on the Hill, is planned for April 2016, and an Environmental Stewardship Day on the Hill is planned for fall 2016. These events are a valuable tool not only to share the good work of DOE and its laboratories but also to raise the laboratory system's awareness of broader Congressional interests and to hear feedback from stakeholders.

2.2 REBUILDING TRUST

The Commission noted that a basic premise of the FFRDC/M&O model is trust. The Commission stated that "the government is responsible for setting the '*what*' of strategic program direction to meet the Nation's needs, while contracted university and industry partners are responsible for determining precisely '*how*' to meet the technical and scientific challenges and to carry out programs." The Commission noted that a strength of this model when it is working properly is to provide freedom to innovate without overly intrusive management. The Commission observed that trust between DOE and the laboratories has eroded, which has resulted in overly prescriptive management in some areas. The Commission also recognized, however, that "there is significant improvement being made in this area under the current Secretary and directors of the National Laboratories, and wishes to support these and other steps" including

reactivating the National Laboratory Directors' Council (NLDC), the LOB, and other forums for collaboration of various groups within DOE and the laboratories.

Commission Recommendations

Under the theme "rebuilding trust," the Commission provided the following recommendations:

Recommendation 2: DOE should delegate more authority and flexibility to the laboratories and hold them accountable for results. The laboratories must be transparent with DOE.

Recommendation 3: DOE and each laboratory should cooperatively develop a high level annual operating plan, and DOE should provide increased flexibility and authority to the laboratory within that framework.

Recommendation 4: DOE should implement greater leadership and management development for its Federal workforce, including multi-directional rotational assignments.

Recommendation 5: DOE should separate NETL's research and development function and consider converting it to a government-owned, contractor-operated FFRDC. NETL should increase its interactions and collaboration with universities.

Recommendation 6: DOE should abandon incentive award fees in the M&O contracts in favor of a fixed fee set at competitive rates. DOE should adopt a broader and richer set of incentives and consequences to motivate sound laboratory management and enforce accountability.

Recommendation 7: For non-nuclear, non-high-hazard, unclassified activities, DOE should allow laboratories to use Federal, State, and national standards in place of DOE requirements. DOE should review and minimize approval processes.

Recommendation 8: DOE should modify its processes for developing directives, orders and other requirements to more fully engage subject matter experts and to use a risk-based model.

Recommendation 9: DOE should focus on making the use of Contractor Assurance System (CAS) more uniform across the laboratories, and local overseers should rely on information from the CAS systems.

Recommendation 10: The role of the site office should be emphasized as one of "mission support," with all staff in the site office reporting to the site office manager. DOE should devote more effort to leadership training and professional development of field staff.

Recommendation 11: *DOE should clarify the role and authority of the support centers and align all authorities at either the site office or DOE headquarters, as appropriate.*

Recommendation 12: *All stakeholders should make maximum use of local assessments performed by site offices and laboratories.*

Recommendation 13: *DOE should establish a single point of control—within the Department or each stewarding program office—for all laboratory-directed data requests.*

Recommendation 14: *DOE and its program offices should increase the size of funding increments, extend timelines and minimize milestones for each increment, and institutionalize mechanisms for laboratory flexibility to move money between budget codes.*

Recommendation 15: *Congress should repeal Section 301(d) of the FY 2015 Consolidated Appropriations Act as soon as feasible to remedy the transactional burden it creates for OMB, DOE Headquarters, and the laboratories when operating under a continuing resolution.*

Discussion

DOE agrees with the Commission that there is a need to return to the spirit of the FFRDC model. FFRDCs enable government agencies to work with private sector partners to accomplish tasks that are integral to the mission and operation of the sponsoring agency. The FFRDC is required to conduct its business in a manner befitting its special relationship with the government, to operate in the public interest with objectivity and independence and with full transparency to its sponsoring agency. To do this, DOE and the National Laboratories must work together as partners to restore the ideal nature of the FFRDC relationship as a culture of trust and accountability. To that end, the specific actions outlined here focus on achieving three objectives: (1) implement Laboratory stewardship through partnership, (2) clarify roles and responsibilities, and (3) improve the development and implementation of requirements, as well as the laboratory oversight environment.

Specific Actions

OBJECTIVE: Implement laboratory stewardship through partnership (*Recommendations 2, 3, 4, 6, 12, 21*)

Existing Initiatives. Consistent with the FFRDC model, DOE will ensure its laboratory stewardship responsibilities are founded on the trusting partnership that must exist between Federal and laboratory leadership. Maintaining this partnership requires developing a strong set of tools that will allow all DOE programs to consistently and effectively partner with the

laboratories; delegating authorities to the laboratories where warranted; and investing in leadership development for both Federal and laboratory staff. DOE has established two joint Federal-Laboratory bodies that provide the leadership and enterprise-wide coordination to effectuate this commitment to a partnership model: the LPC and the LOB.

- In July 2013, the Secretary established the **Laboratory Policy Council (LPC)** to provide a forum to include the National Laboratories in strategic discussions of DOE's policy and program planning process, and for DOE to provide strategic guidance on National Laboratory activities. The LPC, chaired by the Secretary and comprised of senior DOE leadership and the National Laboratories Directors' Council Executive Committee, convenes three times a year and serves as an important forum for exploring nascent proposals related to new research directions, building human capacity, and improving communications; discussing progress and guidance on initiatives, such as technology transition pilots and emergency response. Discussions within the LPC have focused on crosscutting Departmental initiatives, DOE-lab studies by external bodies, management challenges, and workforce and leadership diversity.
- The **Laboratory Operations Board** was chartered in October 2013, with a charge "to strengthen and enhance the partnership between DOE and the National Laboratories, and to improve management and performance." One of its early efforts illustrates the enterprise-wide impact of the group: the LOB led a first-ever enterprise wide assessment of general purpose infrastructure across all 17 National Laboratories and NNSA sites and plants, using newly-established metrics to provide a uniform assessment of infrastructure such as utilities, HVAC systems, and office buildings. This initiative provided the basis for an additional \$106 million requested by DOE, and funded by Congress in the Fiscal Year (FY) 2016 appropriations, targeted for general purpose infrastructure projects. Since then, the LOB has led DOE on other operations and management issues ranging from the strategic – e.g. coordinating a similar enterprise-wide effort to provide updated assessments and prioritization of unused and contaminated "excess" facilities, to the targeted – e.g. updating Departmental policy on Strategic Partnership Projects and then building a community of practice to promulgate best practices and streamline approvals.
- The LPC and LOB have proven to be successful partnership forums where issues can be raised and solutions can be debated with relevant stakeholders engaged. These bodies will continue to play an important role in providing insight into key Departmental strategy and management issues. They are closely integrated with the laboratory leadership, as the executive committee of the NLDC sits on the LPC, and the chairs of the laboratory Chief Operating Officer and Chief Research Officer working groups are members of the LOB. The

charters of these two key leadership groups will be amended to clearly establish that a key focus area of each initiative should be to address issues counter to the DOE/laboratory partnership, and to establish mechanisms to identify and remedy those as they arise.

Increasing Flexibility and Accountability through Annual Operating Plans. DOE appreciates the recommendation from the Commission regarding **annual operating plans**, which would reflect high-level agreements on the nature and scope of the laboratory's activities. As discussed below in Section 2.3, DOE has already embarked on an effort to improve the existing annual planning process as well as the performance management process through DOE's existing annual Performance Evaluation and Management Plans (PEMPs). These improvements are responsive to some of the increased transparency, accountability, and predictability of laboratory planning that the Commission's report recommends, and DOE is currently evaluating whether existing Departmental mechanisms can be further enhanced to address the Commission's concerns. In addition to these ongoing efforts to strengthen annual laboratory planning and evaluation processes, DOE is undertaking a number of other steps.

- DOE also is evaluating whether a **pilot of the annual operating plan concept** at one or two National Laboratories (or areas within a laboratory) would result in added streamlined management without creating a duplicative process.³ Any pilot effort would be focused on establishing a high-level understanding and agreement on the laboratory's planned work for the year, which could then be used to guide and expedite various approval processes throughout the course of the year.
- As a result of related recommendations from SEAB, DOE has initiated an "**evolutionary**" **working group** effort to identify specific authorities that can be delegated, on a pilot basis at Fermi National Accelerator Laboratory, to improve efficiency and reduce transactional oversight. Some of the recommendations for this group likely will lead to changes to Departmental-wide policies.
- Similarly, DOE has initiated a second "**revolutionary**" **working group** to examine the laboratory contract structure at the Stanford Linear Accelerator Center, with the objective of developing a more streamlined approach to improve the partnership and reduce transactional oversight.

Leadership Development Rotational Assignments. The LOB has established a working group with the DOE Chief Human Capital Officer (CHCO) to develop and implement a pilot for a

³ In comments to DOE on the Commission report, the Executive Committee of the National Laboratory Directors' Council raised a concern that a new annual operating plan might be duplicative of current requirements such as the PEMP.

leadership development rotational program that would offer DOE Federal and laboratory mid-level and senior employees opportunities to rotate to laboratory or Federal sites. These rotational assignments would provide opportunities for a detail to a limited-term team that is focused on a unique project or solving a complex problem; longer term assignments also would be considered on a case-by-case basis. The rotational program, to be run by the CHCO office and anticipated to begin in 2016, is intended to promote greater common understanding of the management challenges and opportunities between the laboratories and the Federal employees, and to strengthen partnership and trust.

Incentive Award Fees. With respect to the **M&O contract incentive structure**, the Commission's recommendations are most applicable to the NNSA contracts. Informed by feedback from the M&O community, NNSA is developing an M&O overarching procurement strategy guide that will include contract structure and incentive guidance for use when each specific acquisition strategy is initiated and approved for future competitions of NNSA's M&O contracts. This new contracting strategy will identify the appropriate application of incentive and fixed fee for NNSA contracts when the procurements for those contracts arise.

OBJECTIVE: Clarify roles and responsibilities (*Recommendations 5, 10, 11*)

Headquarters and Field Management. In general, program management responsibility and strategic direction reside at DOE Headquarters whereas field offices provide day-to-day implementation and are advocates for mission work at the sites. DOE is taking steps to clarify the roles and responsibilities of the headquarters, program, field, and laboratory organizations. This will help strengthen the partnership between DOE and the labs and improve the implementation of core operational mechanisms and risk management, such as the Contractor Assurance System (CAS).

A working group of the LOB is developing a **DOE/Laboratory Management Framework** document to be completed in 2016, which will describe the current operational framework across the Department, identify those parts of the framework that have added value to the DOE/laboratory relationship, and articulate core management principles relevant to the DOE/laboratory relationship to be implemented by the Under Secretaries.

Each DOE program will review its field authorities and structure as part of this effort, including to ensure that Contracting Officers report to line managers. In addition, each program will formalize a field manager training and professional development program that provides for effective workforce planning and instills an understanding of "mission support" as the primary site office role.

In particular, NNSA will execute plans to improve its governance and oversight of field operations at its laboratories, sites, and plants and clarifying roles and responsibilities. The new approach will clarify the oversight roles of headquarters and field office personnel, placing emphasis on new rigorous and dependable Contractor Assurance Systems (described below), and leveraging best practices from the Office of Science, including enhancing peer review and corporate parent involvement as appropriate for each site. In addition, to manage and eliminate duplication in field oversight, NNSA's field offices will use a Site Integrated Assessment Plan (SIAP) to identify their annual oversight requirements. This effort is intended to result in a consolidated schedule across all field offices and to assign resources based on expertise and functional area.

National Energy Technology Laboratory. The Commission also recommends for **National Energy Technology Laboratory (NETL)**, the only DOE National Laboratory that is government owned and government operated (GOGO), that there is a need for "significantly increased clarity and focus on the R&D mission for the research staff at NETL and for others outside NETL who work with them." The Commission recommends that DOE should separate NETL's R&D function from its management of Federal programs, and that the R&D function should be converted to "a government-owned contractor-operated FFRDC."

While DOE agrees there is a need for increased focus on the R&D conducted by NETL's scientists, the Department notes that there are several ways to pursue such a focus. In the near term, focus on the R&D can be better achieved by integrating and synchronizing NETL's intramural and extramural research portfolio. This integration will better focus NETL's research, enhance NETL's collaborations with researchers in academia, industry, and other National Laboratories, and increase NETL's ability to consistently provide better science and research results. The Office of Fossil Energy recognizes the need to enhance NETL parity with other GOGOs within the Federal government by giving flexibility and discretion to drive innovation through mechanisms similar to those authorized by the National Defense Authorization Act. These mechanisms permit discretionary funds to strengthen scientific and technical vitality and create a flexible personnel system (e.g., direct-hire authority for scientific and engineering positions, broad-banded pay systems, simplified job classification, contribution-based compensation system, and enhanced training and development) to attract and retain scientific and technical expertise.

OBJECTIVE: Improve the development and implementation of requirements; improve the laboratory oversight environment (*Recommendations 7, 8, 9, 13, 14, 15, 18*)

DOE has initiated a comprehensive review of **how, when, and why it establishes its own set of requirements**, with a charge to take a fresh look at mechanisms including directives, policy memoranda, and acquisition letters. A workshop with a wide set of perspectives (both Federal and laboratory) is being convened in early 2016 with the goal of identifying specific challenges to tackle; it will be sponsored by the LOB and co-chaired by a Federal and a laboratory employee. Part of that effort is expected to discuss DOE requirements that are duplicative of Federal, State and National standards and whether there are circumstances where laboratories should be able to use those standards in place of DOE requirements. The effort also will evaluate proposals to streamline the processes for developing directives and other requirements.

In addition, the Commission noted that **data calls** “can often arrive at the laboratories without being sufficiently vetted or filtered.” The Commission indicated that the Office of Science (SC) has reduced the number of data calls by establishing a single point of contact for data requests for all of its 10 laboratories. Consistent with the Commission’s recommendation, NNSA and the programs that oversee the applied laboratories plan to evaluate the process used in SC and determine what actions would be appropriate for their programs and their respective laboratories.

The Commission report also recommended that DOE identify opportunities to reduce the transactional burden associated with **funding allotments**, as well as to evaluate whether Congress should repeal Section 301(d) of the FY 2015 Consolidated Appropriations Act.

DOE is limited in the actions it can take without Congress to reduce the subdivision of funding into smaller “buckets.” The annual appropriations act for DOE subdivides DOE’s funding into more than 500 legally-binding control points, as enforced by section 301(d). Additional control points also are sometimes established administratively through the OMB apportionment process and the internal DOE funds distribution process.

DOE’s Office of the Chief Financial Officer (CFO) has been working with the program offices to reduce the subdivision of funds below the Congressional control points. As the Commission points out, the DOE Office of Energy Efficiency and Renewable Energy has recently moved towards larger grants with longer periods of performance and fewer milestones and reporting requirements. In addition, increased transparency should reduce the introduction of control points.

The Section 301 (d) restriction can be troublesome during periods when DOE funding is provided through Continuing Resolutions rather than through an annual appropriations Act. Because the Continuing Resolution typically provides funding at the same level and under the same terms and conditions as the prior year appropriation, it can significantly restrict flexibility as programs transition to the new fiscal year. Also, because a Continuing Resolution is typically enacted for short periods of time, there may not be adequate time to process reprogrammings to address issues where additional program flexibility may be needed. The Administration succeeded in obtaining a waiver of section 301 for the NNSA Weapons Activities appropriation in the FY 2013 full year continuing resolution. No other DOE programs received a section 301(d) waiver in the FY 2013 continuing resolution, and reprogrammings—often requiring months for formulation and Congressional approval—were required to reallocate funds to address requirements. Congress has not waived the provision in any subsequent continuing resolutions or conference appropriations Acts. DOE would work with the House and Senate Appropriations Committees if they choose to repeal section 301(d) to develop mechanisms that will preserve Congressional oversight and ensure Departmental accountability while improving management efficiency and effectiveness. In addition, DOE is exploring mechanisms for better integrating disparate funding streams to have a larger impact, such as is being done in the Grid Modernization Laboratory Consortium.

With respect to the oversight environment, the **Contractor Assurance Systems (CAS)** will continue to serve as a system for the contractor to manage performance consistent with contract requirements. Under this system, the oversight of activities with potentially high consequences is given high priority and greater emphasis. In addition, DOE oversight programs are designed and conducted commensurate with the level of risk of the activities. A working group led by the LOB has been reviewing how the various offices operate CAS at the laboratories under their purview and is developing a policy document which articulates high-level CAS principles, to help further more uniform application across the complex. These principles of Contractor Assurance, roles/responsibilities, and levels of risk acceptance underlie DOE/laboratory interactions, and so these core CAS principles will be incorporated into the DOE/Laboratory Management Framework document described above. In addition, NNSA is in the process of updating its CAS process to more closely mirror the Office of Science model, to include using peer reviews to analyze the strength of the CAS systems.

In the areas of Federal safety and security oversight, DOE has enhanced the way oversight is conducted organizationally, procedurally, and operationally. In 2014, the Secretary established the **Office of Enterprise Assessments** to consolidate and manage all independent safety and security assessments within DOE. At the same time, the **Office of Environment, Health, Safety,**

and Security was established to serve as the organization responsible for policy development and technical assistance; safety analysis; and corporate safety and security programs. These actions provided a clear distinction between operational awareness and independent oversight responsibilities. DOE will continue to work to improve the oversight process, including addressing duplication where appropriate and sharing best practices.

2.3 MAINTAINING ALIGNMENT AND QUALITY

The Commission's report noted the critical role of DOE in providing strategic direction to the laboratory system. The Commission indicates what it finds to be a lack of a comprehensive strategic planning process across DOE, but states that it finds that the laboratories' "research programs and capabilities are generally well-aligned with DOE's missions and strategic priorities." The Commission provides recommendations for improving planning efforts at DOE, including adopting elements of the Office of Science strategic planning process more broadly across DOE.

Commission Recommendations

Under the theme "maintaining alignment and quality," the Commission provided the following recommendations:

Recommendation 16: Other DOE program offices should adapt the procedures and processes that DOE's Office of Science has for guiding and assessing the alignment of the laboratories with DOE's missions and priorities.

Recommendation 17: The processes that the Office of Science has in place for assessing the quality of laboratory research and the quality of the research portfolio in each of its programs, should be adapted by the other DOE program offices.

Recommendation 18: There must be a government-wide reconsideration of the conference travel restrictions.

Recommendation 19: The Commission strongly endorses LDRD programs and supports restoring the cap on LDRD to 6 percent unburdened, or its equivalent.

Recommendation 20: DOE should manage the National Laboratories as a system having an overarching strategic plan that gives the laboratories flexibility. Once the research has matured to the point that a preferred or most promising approach can be identified, the Department should provide strategic oversight and guidance to coordinate and consolidate programs.

Recommendation 21: Congress should recognize that the technical capabilities currently housed within the NNSA laboratories are essential to the Nation. Maintaining the nuclear explosive package capabilities in separate and independent facilities has proven effective and should continue.

Discussion

DOE agrees with the Commission that strategic planning involving both DOE and the laboratories is critical to advancing the strategic direction of the laboratory system. To that end, DOE has identified three objectives: (1) improve laboratory planning and evaluation; (2) manage the laboratories as a system, seeking to achieve maximum benefit for the Nation; and (3) beyond revising strategic planning, examine procedures to allow Laboratories flexibility to maintain excellence in the expertise of research staff.

Specific Actions

OBJECTIVE: Improve annual laboratory planning and evaluation (*Recommendations 3, 16, 20*)

The Secretary has initiated several efforts to bring more consistency to the management and oversight of the DOE laboratories, and DOE has established an Agency Priority Goal for FY 2016-FY 2017 (and related Strategy) that will ensure focus is maintained on these efforts (see box).

First, DOE has already begun to develop a consistent **annual laboratory planning approach** to track and assess laboratory planning and evaluation. In this effort, DOE is establishing a Laboratory Planning Working Group, convened by the Under Secretary for Science and Energy and with participation from NNSA and the Office of Environmental Management, to create a framework for consistent laboratory planning processes. Consistent with Commission recommendations 16 and 17, NNSA and the applied energy offices will model their revised processes using core elements and attributes from the lab planning process used by the Office of Science (SC). As is done in SC, the annual laboratory plans will inform the PEMP, infrastructure plans, and 10-Year Site Plans. A key element for programs and Under Secretarial offices is to ensure that these annual planning

Agency Priority Goal: Deliver the highest quality R&D and production capabilities, strengthen partnerships with DOE headquarters, and improve management of the physical infrastructure of the National Laboratories to enable efficient leadership in science, technology, and national security.

Strategy – Develop and implement a consistent, annual process to track and assess laboratory planning and evaluation.

efforts provide senior-level vision and direction that will help better integrate efforts rather than simply adding another process or level of review.

Second, DOE has efforts underway regarding improvements to annual laboratory planning. Specifically, NNSA is working to improve its strategic planning process and partnership efforts by establishing a laboratory strategic planning function in the NNSA Office of Policy within the Office of the Administrator. NNSA will work with each of the Lab Directors and NNSA field office managers to establish this new process, which will include an annual high-level strategic discussion at which each Laboratory Director presents his or her long-term strategic vision, to include the complex factors and competing objectives that each national laboratory balances, while continuing to assure national security mission success. The discussion will also include longer-term issues that the Director considers vital to the mission success of the laboratory.

Third, the Office of the Under Secretary for Science and Energy has initiated efforts to improve the annual lab planning processes for the applied energy laboratories under its purview. The Office is developing coordinated and uniform guidance for applied energy labs to submit an Annual Laboratory Plan which will track the process and timing used in the Office of Science. The process will also include presentations by the laboratories of its key priorities.

Finally, the Office of Environmental Management (EM), will establish an entity that is responsible for the stewardship of Savannah River National Laboratory. This entity will manage the process for annual laboratory program guidance, planning, and evaluation, and will serve as a focal point for other key laboratory stewardship activities, such as Strategic Partnership Projects (SPP) and LDRD. EM will implement a planning and evaluation process with core elements and attributes developed from the Office of Science model.

In addition to these annual lab planning improvements, DOE also has efforts underway to make the lab performance management process more uniform across DOE. In 2014, the Office of the Under Secretary for Science and Energy chartered a **Laboratory Performance Management Working Group** to better align the processes used by the program offices to annually evaluate the laboratories' performance, using the Office of Science PEMP process as a model. This group developed several recommendations that are being implemented by DOE, through the Under Secretaries, in FY 2016. The recommendations provide for: consistent annual laboratory performance plans across all laboratories with common hierarchy; standard nomenclature and definitions of terms; the identification and evaluation of a laboratory's leadership role in cross-cutting initiatives with inter-laboratory collaboration (e.g., Grid Modernization); and performance feedback from all major sponsors (both DOE and non-DOE) of work at a laboratory. In 2016, the Under Secretary for Science and Energy will integrate this ongoing

effort to improve the PEMP process with the new annual laboratory planning approach described above.

OBJECTIVE: Manage the Laboratories as a system, seeking to achieve maximum benefit for the Nation (*Recommendations 17, 19*)

A number of the efforts described above go to the efforts to manage the laboratories as a system. This includes the enterprise-wide bodies that provide strategic direction and vision to improve the lab partnership—including the LPC and the LOB—as well as the cross-departmental laboratory planning and performance working group that seek to not just improve planning at a single laboratory, but to better integrate planning across the system. In addition, the Departmental reorganization of the Under Secretary offices moved the basic research and applied energy programs under the newly-established Under Secretary for Science and Energy to better coordinate lab research and development activities. DOE will use future updates of the Science and Energy Plan, the NNSA SSMP, and the report entitled “Prevent, Counter, and Respond – A Strategic Plan to Reduce Global Nuclear Threats,” to articulate decisions pertaining to an appropriate level of duplication of research and synergies in the DOE-laboratory crosscuts.

Moreover, DOE will continue collaboration through **DOE-laboratory crosscuts**, and will use the enhanced lab planning approach to inform, for example, crosscutting teams, and plans and proposals submitted to the **National Laboratory Big Ideas Summit**. The Under Secretary for Science and Energy will continue to sponsor an annual National Laboratory Big Ideas Summit, which brings together subject matter experts from DOE’s science and energy offices as well as the Office of Energy Policy and Systems Analysis, the NNSA, and all 17 National Laboratories (including their Directors and senior research staff) to propose and explore innovative ideas for solutions to key energy issues. The first Summit resulted in major Departmental initiatives in FY 2015 and FY 2016, including the Grid Modernization Laboratory Consortium, which is led by two Federal and two Laboratory representatives.

OBJECTIVE: Beyond revising strategic planning, examine procedures to allow Laboratories flexibility to maintain excellence in the expertise of research staff. (*Recommendations 18, 19 and 21*)

Through discussions with the National Laboratory Directors’ Council (NLDC) and their working groups, as well as through the LPC and LOB, DOE will continue to identify additional methods and mechanisms to manage the Laboratories as a system with maximum flexibility to pursue new, mission-relevant lines of inquiry.

Of particular note, DOE welcomes the Commission's support for **LDRD programs**. The LDRD Program provides the laboratories with the opportunity and flexibility to establish and maintain an environment that encourages and supports creativity and innovation, and contributes to their long-term viability. LDRD allows DOE's laboratories to position themselves to advance the national security mission and respond to the Nation's future research needs. The Commission recommended that Congress restore the cap on LDRD to 6 percent unburdened, or its equivalent, noting that this will have the largest impact on LDRD at the NNSA laboratories. The recently-enacted FY 2016 National Defense Authorization Act increased funding for LDRD with a minimum rate of 5 percent and a maximum of 7 percent of the NNSA laboratories' operating budgets, a level more consistent with historic NNSA levels.

DOE also is working to promulgate best practices on LDRD throughout DOE. DOE will establish a best practices process in FY 2016 to help the National Laboratories improve the flow of outcomes from LDRD to missions. This working group, led by NNSA but involving the other Under Secretary offices as well, also will develop an electronic forum in 2016 to document and share best practices. In FY 2016, DOE will issue a LDRD Highlights document; NNSA also will share the individual annual lab reports with Congress and provide an annual briefing for stakeholders on the benefits realized due to LDRD investments.

In regard to **conference management** procedures, as the Commission notes, DOE has taken efforts to revise and refine the existing processes, including to streamline administrative actions and reduce transactional oversight, while meeting all legal requirements and maintaining appropriate management controls to ensure cost-effectiveness.

DOE also is streamlining its approval requirements relating to **laboratory employee benefits** to provide laboratories greater flexibility to manage their workforce. Among these changes, following the issuance of the Commission's report, in January 2016 DOE revised its process to eliminate prior approval of new or revised benefit plan changes, with the exception of changes that result in increased costs or that are contrary to Departmental policy or written instructions. DOE also agrees that the timing of its process for reviewing pension funding plans should be addressed and is working to streamline those processes.

2.4 MAXIMIZING IMPACT

The Commission finds that the "National Laboratories represent a national asset of inestimable value" but notes that more can be done to tap the capabilities of the laboratories, especially in support of economic competitiveness. The laboratories interact with stakeholders beyond DOE – including other Federal agencies and the private sector. The Commission states that more

can be done to broaden collaboration and to make the laboratories run efficiently and effectively.

Commission Recommendations

Under the theme “maximizing impact,” the Commission provided the following recommendations:

Recommendation 22: DOE should establish policies and procedures to make the Strategic Partnership Projects (SPP) process more efficient.

Recommendation 23: DOE should support efforts to strengthen the Mission Executive Council.

Recommendation 24: DOE and its laboratories should continue to facilitate and encourage engagement with universities.

Recommendation 25: DOE should fully embrace the technology transition mission and continue improving the speed and effectiveness of collaborations. Innovative technology transfer and commercialization mechanisms and best practices should continue to be pursued.

Recommendation 26: DOE should determine whether the annual operating plans could qualify as the “agency approved strategic plan” under the Stevenson-Wydler Technology Innovation Act of 1980, and the Fast-Track CRADA Program. For CRADAs with non-standard terms and conditions, DOE should define the acceptable range for each term and condition to greatly expedite negotiation and review/approval time.

Recommendation 27: Laboratories should pursue innovation-based economic development by partnering with regional universities.

Recommendation 28: DOE, the Administration and Congress should continue to support user facilities at the DOE laboratories, including peer review by external advisory groups.

Discussion

DOE agrees that the laboratories’ engagement with Federal and private sector partners is a vital element of their mission. The DOE laboratories are major national scientific and technical assets whose contributions to the United States at large, and in areas beyond the DOE missions, are significant. In addition, the DOE laboratories can play a regional role in supporting universities and community colleges by providing partnering opportunities and serving as a conduit to the broader laboratory network. DOE’s objective in this area is as follows: enhance

laboratory mission-aligned collaboration with stakeholders and the broader science and technology community.

Specific Actions

OBJECTIVE: Enhance laboratory mission-aligned collaboration with stakeholders and the broader science and technology community (*Recommendations 22, 23, 24, 25, 26, 27, 28*)

In the area of **Strategic Partnership Projects (SPP)**, the Secretary recently issued an updated policy document which sets forth the principles for DOE's strategic engagement with partners from other Federal agencies and the private sector. This policy makes clear that DOE is committed to expanding the use of its laboratories and other sites for the benefit of its strategic partners. This work must be consistent with or complementary to DOE's missions or the facility to which the work is to be assigned. The work also should enhance or make use of the facility's core capabilities, but does not need to be associated with a specific mission of the "owning" program. Additionally, the work must not adversely impact DOE programs, result in direct competition with the domestic private sector, or create a detrimental future burden on DOE resources.

In addition, under the leadership of the LOB, DOE established a community of practice on SPP to ensure communication of best practices across the complex. The community of practice held its first annual SPP summit in March 2015 and continues to meet to discuss ways to enhance collaboration and streamline processes. Within NNSA, the Office of Strategic Partnership Programs has created a task force of laboratory and Federal personnel, including potential SPP partner representatives, to improve the SPP program, processes, and procedures. The task force will undertake an in depth look at the current process to identify efficiencies, an analysis of other mechanisms to place work, including umbrella agreements, and a discussion on appropriate metrics. Proposed changes to the NNSA SPP approval process are expected to be implemented in late FY 2016.

The Commission also recommends that DOE "support efforts to strengthen the MEC." The **Mission Executive Council (MEC)** was established to bring a more strategic understanding of the capabilities needed for the labs and facilities to serve the agencies' missions. While DOE is committed to the future success of the MEC, further development of this strategic concept is required, as well as the involvement and commitment of the agencies for which the DOE facilities perform their work. In addition, since the MEC only represents four agencies, it would not be the proper venue to coordinate, streamline, and execute all interagency work because

many other stakeholders would not be represented. The MEC is currently pursuing an agenda focused on identifying strategic priorities and critical capabilities to address enduring national security challenges and potential technological surprises raised by the MEC Member agencies. This approach and dialogue are starting to work and will result in an actionable MEC strategic framework on specific activities for the MEC Members to execute.

DOE concurs with the Commission's recommendation on continuing to support **user facilities** at the laboratories. DOE will continue to support user facilities as a key part of its portfolio and will continue to use external peer review and external advisory groups to evaluate facility performance and help inform decisions on existing and future facilities. DOE also will ensure that best practices by the Office of Science for managing user facilities are incorporated into the management practices of other DOE program offices. In addition, DOE will include a discussion about user facilities in the Annual State of the Laboratory System report to emphasize the critical role they play.

In regard to supporting and accelerating DOE's **Technology Transfer Mission**, DOE also recognizes how technology transition activities offer ways to improve coordination of strategic activities with the laboratory enterprise. In early 2015, the Secretary established the Office of Technology Transitions (OTT) to coordinate and optimize how DOE transitions early-stage R&D to applied energy technologies through technology transfer, commercialization, and deployment activities. The OTT works with the Technology Transfer Working Group, which includes representatives from all National Laboratories, as a strategic partner providing them information about DOE activities and getting feedback from them on new technology transition programs and policies.

To further support technology transitions activities, DOE will update its 2008 Department-wide policy statement on technology transfer activities and will also develop the statutorily-required Technology Transfer Execution Plan, which will help set the strategic vision and implementation instructions for DOE. These documents will identify ways to enhance the visibility and endorse the importance of the technology transition mission. Additionally, DOE will work to provide more clarity to laboratories regarding the acceptable range for terms and conditions for non-standard CRADAs to expedite negotiation and subsequent review and approval. DOE implements both decentralized and centralized approaches to technology transfer and notes that National Laboratories currently have and employ the flexibility to interact directly with industry and negotiate agreements. DOE supports industry and laboratory interactions that are decentralized since each laboratory is unique and should develop partnerships that support the missions of DOE, and are tailored to the Laboratory's surrounding community and industry

needs, including the pursuit of innovation-based economic development. Recognizing some of the constraints of existing mechanisms, DOE has over the last few years worked to provide more flexibility through the Agreement for Commercializing Technology (ACT) pilot, which will be assessed for its ability to reduce barriers to entities that access the laboratories. DOE also will continue to encourage laboratories to build on the successful innovative mechanisms identified by the Commission for engaging industry to make collaborations easier, faster, less expensive, and more effective.

With respect to **collaboration with universities**, DOE agrees that its engagement with universities is a critical part of the work of DOE and its laboratories. For instance, DOE provides direct-funded grants to universities following a competitive selection process (ranging from single-investigator awards to large multi-disciplinary efforts), and also issues subcontracts to universities. One example of ongoing engagement is through the Energy Frontier Research Centers (EFRCs), which are funded by the Office of Science, and involve partnerships among universities, National Laboratories, and private sector partners to conduct fundamental research focusing on one or more grand challenges to accelerate transformative discovery in current energy technologies. Other partnerships including Energy Innovation Hubs, which are integrated research centers that combine basic and applied research with engineering to accelerate scientific discovery, and the National Network for Manufacturing and Innovation (NNMI), which provides a manufacturing research infrastructure where U.S. industry and academia collaborate to solve industry-relevant problems.

In addition, university faculty and students are actively engaged in work at DOE's laboratories; more than half of the researchers using the Departmental scientific user facilities come from universities. Collaborations between university and National Laboratory researchers take place through mechanisms such as personnel exchanges and joint faculty appointments, research collaborations, and joint research programs.

Looking forward, there will be additional opportunities to further engage with universities and impact innovation based economic development as a result of the **Mission Innovation initiative**. At the recent COP21 meeting in Paris, the Mission Innovation initiative was announced by the President and leaders from 19 other countries. Each of these countries pledged to double their investment in clean energy R&D over the next five years. DOE's implementation of Mission Innovation will encourage greater effort and collaboration by all participants in the innovation process – including individual innovators, universities, private companies and National Labs.

2.5 MANAGING EFFECTIVENESS AND EFFICIENCY

The Commission Report addresses effectiveness and efficiency in three specific areas of DOE's enterprise: overhead rates, infrastructure, and project management. Having compared overhead rates at DOE laboratories with those of university, the Commission concluded that non-NNSA laboratory rates are comparable with university rates when both are adjusted for variability in rate structures. NNSA laboratory rates were found to be higher; however, the Commission noted that the difference was understandable given the unique mission at those laboratories. The Commission also highlights that facilities and infrastructure can have a substantial impact on laboratory research operations. The Commission concludes that laboratory facilities and infrastructure in poor condition can have inadequate functionality for mission performance; negative effects on the environment, safety, and health of the site; higher maintenance costs; and problems recruiting and retaining high-quality scientists and engineers. The Commission recommended increased investment to "...maintain and revitalize the system." Finally, the Commission indicates that project performance could be improved by imposing greater discipline in following project management guidance.

Commission Recommendations

Under the theme "managing effectiveness and efficiency," the Commission provided the following recommendations:

Recommendation 29: DOE should continue implementing the Institutional Cost Report (ICR) and encourage additional peer reviews to help mature the ICR.

Recommendation 30: DOE should provide greater transparency into laboratory indirect costs and publish an annual report of the overhead rates at each National Laboratory.

Recommendation 31: DOE should consider whether a capital budget will better serve its internal facilities and infrastructure budgeting and management needs.

Recommendation 32: DOE and the laboratories should continue efforts to improve infrastructure by halting the growth in deferred maintenance and speeding up the deactivation and decommissioning of excess facilities. DOE should work with Congress and OMB to agree upon the size and nature of the resources shortfall and develop a long-term plan.

Recommendation 33: DOE, the laboratories, Congress, and OMB should actively work together to identify appropriate situations and methods for utilizing innovative financing approaches.

Recommendation 34: *DOE should maintain focus on increasing institutional capability and imposing greater discipline in project management, including peer reviews and “red teams.”*

Recommendation 35: *The Commission supports the recent SEAB Task Force recommendation to put more resources into science and technology development for the EM program.*

Discussion

DOE agrees that managing effectiveness and efficiency is a critical element to a well-functioning FFRDC partnership. Recent Departmental efforts, such as the establishment of the Under Secretary for Management and Performance, the development of the LOB, and the Departmental efforts to improve project management, have focused on this issue. DOE’s objectives in this area are as follows: (1) continue to maintain the Institutional Cost Report (ICR); (2) revitalize laboratory general purpose infrastructure and reduce the risk of excess facilities; and (3) improve project management.

Specific Actions

OBJECTIVE: Enhance the Institutional Cost Report (ICR) (Recommendations 29, 30)

DOE will continue to work with the laboratories to refine and enhance the quality of the **Institutional Cost Report (ICR) data**. DOE initiated annual ICR reporting in FY 2011, and with the submission of FY 2015 data, will have five years of ICR data. This report provides high-level data to DOE on trends in indirect costs at the laboratories. DOE will work with the laboratories to analyze cost trends across the five years of data and continue to use the ICR data to provide supporting data, as appropriate, for DOE data calls and analyses of laboratory costs.

Detailed ICR data is shared among laboratories under a contractual term prohibiting disclosure of confidential or proprietary business information. This sharing has enabled the laboratories to perform peer reviews of the data to improve quality and consistency. Nonetheless, there are significant variations in the ICR data reflecting, in part, different accounting methods for allocation of indirect cost pools among the laboratories. DOE strongly supports the objective of improving the management efficiency of the National Laboratories through more rigorous analysis of indirect costs and actions to better control costs. The laboratory peer review process provides a needed first step, and DOE will work with the laboratories to continue and intensify the peer review process in order to gain insight into management opportunities to reduce costs. In addition, the LOB will assign greater priority to providing a forum for identifying and sharing of best practices to reduce costs across the laboratories and DOE programs consistent with relevant OMB guidance. DOE will undertake additional efforts to

improve the validation of indirect cost estimates, such as crosscutting reviews of selected indirect cost categories. Such reviews will inform additional efforts by the laboratories to manage indirect costs. DOE will also work on efforts that will lead toward consistency and promote greater transparency to the public on overhead rates in the national laboratory system within legal constraints.⁴

OBJECTIVE: Revitalize laboratory infrastructure, reduce the risk of excess facilities, and improve project management (*Recommendations 31, 32, 33, 34, 35*)

The Commission's report identifies significant challenges faced by DOE and the laboratories with degrading infrastructure and deferred maintenance and "excess" facilities that were once used for the Nation's nuclear production efforts but now are sitting unused, awaiting deactivation and decommissioning (D&D). The Commission states that "The total cost of cleanup at all DOE sites was estimated to be \$280 billion in 2013. As of 2015, EM has determined that 234 additional facilities meet its criteria for transfer to EM, but it does not have the funding to accept them for remediation. In addition to the issue of cost of surveillance and maintenance for the program offices, contaminated excess facilities continue to pose a risk to mission, workers, the public, and the environment." The Commission also notes that "the Department needs to build more project management and cost-estimating capacity. It also needs a more homogeneous and disciplined project/program management culture."

Recognizing these challenges, DOE has recently implemented an enterprise-wide focus on infrastructure planning and uniform assessments, and improving project management. This focus supports a specific strategy DOE has articulated under its Agency Priority Goal for the National Laboratories, to improve the percentage of DOE laboratory facilities assessed as "adequate" (see box).

First, last year, a LOB-led effort resulted in significant DOE-wide improvements to the rigor and consistency of infrastructure assessments, allowing more credible and reliable data for decision

Agency Priority Goal: Deliver the highest quality R&D and production capabilities, strengthen partnerships with DOE headquarters, and improve management of the physical infrastructure of the National Laboratories to enable efficient leadership in science, technology, and national security.

Strategy: By the end of FY 2017, the percentage of assessed DOE laboratory facilities categorized as "adequate" will increase by 2 percentage points from the FY 2015 baseline.

⁴ The Commission report provided a summary comparison of indirect cost rates that illustrated the differences in the composition of indirect costs among classes of laboratories – NNSA and Non-NNSA laboratories. The Commission's analysis also suggests that total indirect costs for the non-nuclear security laboratories are commensurate with those at major research universities.

makers at all levels. This year, the focus has been on further developing an annual infrastructure status report that provides an enterprise-wide view of risks and opportunities on a timeline that will inform budget formulation and defense. Both of these efforts will continue under the leadership of the newly-formed Infrastructure Executive Committee, which consists of line managers and facilities experts from programs, labs, plants, and sites that has been charged with providing an **annual update to DOE leadership on the state of general purpose infrastructure**, and presenting an enterprise-wide list of prioritized investments. In FY 2016, the first year of this effort, Congress appropriated \$106 million in new investments in critical general purpose infrastructure requested by the Administration and identified through this LOB-led process. In addition, DOE's FY 2017 budget submission proposes investments to ensure no increase in the backlog of deferred maintenance at facilities across the complex.

Within individual program offices, infrastructure efforts are now an integral part of the laboratory planning and evaluation processes described in Section 2.3, above. Specifically, annual infrastructure planning processes at each laboratory are being developed that will result in a ten-year maintenance and recapitalization plan that is integrated with and fully supportive of the Annual Lab Plans. Plans will include reduction of deferred maintenance, removal of excess facilities, and proposals for potential construction of new facilities, including consideration of innovative financing approaches as recommended by the Commission. Evaluation of laboratory performance related to infrastructure stewardship will be included in laboratory performance plans. In addition, NNSA has expanded its Asset Management Program (AMP) which uses supply chain management economies-of-scale to provide a more centralized and efficient procurement approach to replacing mission-critical aging infrastructure systems that are common throughout the enterprise, such as roof and HVAC systems.

Second, in regard to removal of excess facilities, the Secretary directed the establishment of an **Excess Contaminated Facilities Working Group**, led by the LOB. The working group developed and executed an enterprise-wide data collection effort to obtain updated cost and risk assessments to deactivate, decontaminate, decommission, and demolish excess facilities. The updated data from the working group was used to define the scope of the challenge and to identify options for how DOE may better prioritize excess facilities. The group is developing policies to institutionalize a corporate approach, and updating and validating data gathered by the working group's efforts. The group also will be finalizing a report on its work. This report will be issued in 2016, also in response to a requirement of the 2016 National Defense Authorization Act.

Third, in 2013, the Secretary established a working group to examine **project management practices** at DOE. After its review, the working group issued a report identifying ways in which project management at DOE could be improved. Following these efforts, in December 2014, the Secretary issued a Secretarial policy memorandum which included additional efforts to improve project management, including: strengthening the Energy Systems Acquisition Advisory Board, establishing a Project Management Risk Committee, and improving the lines of responsibility and the peer review process. To further strengthen the independence of the project peer review process, the Secretary directed each Under Secretary to establish, if it did not already exist, a project assessment office that did not have line management responsibility for project execution. As a result, the Under Secretary for Nuclear Security elevated the Office of Project Assessments as a direct report to the Under Secretary, and within the Under Secretary for Management and Performance, the Office of Project Management Oversight and Assessments was established as a direct report to conduct assessments of the EM portfolio of projects. The Under Secretary for Science and Energy uses the successful model employed within the Office of Science (including the comprehensive project reviews conducted by SC's Office of Project Assessment), and is continuing to expand that model to capital projects funded by the energy programs. In June 2015, a Secretarial memorandum further enhanced and clarified departmental policy related to areas of project management to include analysis of alternatives, cost estimating, planning and scheduling, and design management, among others. DOE is in the process of revising its Project Management Order to incorporate these enhancements to DOE's project management processes and procedures.

In addition, the FY 2017 DOE budget proposes to establish a statutory, DOE-wide Office of Cost Estimating and Program Evaluation (CEPE-DOE) in recognition of a gap in DOE's capacity to independently determine accurate costs of programs and acquisitions within DOE. This proposal also complements, but is not duplicative of, NNSA's Office of Cost Estimating and Program Evaluation (CEPE) established by the 2014 National Defense Authorization Act (50 USC 2411). CEPE-DOE will provide independent analytic advice on all aspects of DOE programs, including cost-effectiveness, and the development and evaluation of program alternatives.

Fourth, even with the improved planning tools noted above in place, DOE agrees with the Commission's recommendation that high levels of **deferred maintenance** and excess facilities continue to pose a challenge. The Commission recommended that DOE **work with Congress and OMB** to agree upon the size and nature of the resources shortfall for facilities and infrastructure, and to develop a long-term plan to resolve it through a combination of increased funding, policy changes, and innovative financing. DOE agrees with this recommendation, and

will continue briefing Congress and OMB on the updated data on the infrastructure and excess facilities challenges identified by the recent working groups.

Further, current Federal budget statutes and policies derive from the concept of a unified Federal budget and do not provide for separate capital and operating budgets. While DOE will not pursue a capital budget, DOE CFO will work with OMB to establish a separate management information system to **report on capital investments** that it will present in its FY 2018 budget request to Congress. These efforts will both improve DOE's infrastructure and provide greater public insight into Departmental investments.

DOE also agrees that, where appropriate, **innovative financing approaches** that are consistent with relevant policies should be pursued more aggressively to address the infrastructure challenges and future needs. DOE has been working with its laboratories to intensify the review and analysis of such approaches, including non-Federal financing and enhanced use leasing, and the LOB receives a monthly update on the progress of these efforts.

Finally, with respect to **environmental management technology development**, DOE agrees with the recommendations from the recent SEAB Task Force regarding the importance of these initiatives. While EM has made significant progress in closing a number of projects, many of the most challenging projects remain and will for decades to come. To address these challenges, the Secretary established a SEAB Task Force Advisory Board to advise on opportunities and barriers for science and technology development for cleanup, as well as a recommendation on the means to implement a program to develop such technologies. EM is targeting critical, near-term technology challenges, which include the following: disposition of cesium and strontium; remediation of mercury contamination; smarter Solutions for technetium management; developing capability for radioactive test beds; and leveraging Federally-funded initiatives and advancements in robotics. EM also is analyzing its remaining mission scope to identify opportunities for infusing game-changing innovation that will help reduce the overall lifecycle cost and duration of that work. As part of this effort, DOE held a Basic Research Needs workshop (co-sponsored by SC and EM) to identify challenges germane to the clean-up, and SC has now issued a call for proposals seeking new Energy Frontier Research Centers to tackle some of the challenges. EM also will continue to identify technologies that improve upon worker health and safety as well as nuclear facility safety.

2.6 ENSURING LASTING CHANGE

The Commission's report points out that over 50 commissions, panels, reviews and studies of the National Laboratories have been conducted over the past four decades, noting that none of

those reports led to the comprehensive change necessary to address persistent challenges. The Commission report observes the lack of a standing body or internal DOE mechanism to advocate for implementation of recommended changes, perform systematic assessments, and evaluate progress over time and states that such an entity could, among other purposes, serve to evaluate whether changes to restore the FFRDC relationship are being made in substance or only cosmetically.

Commission Recommendation

Under the theme “ensuring lasting change,” the Commission provided the following recommendation:

Recommendation 36: A standing body should be established to track implementation of the recommendations and actions in this report, and to report regularly on progress, results, and needed corrective actions.

Discussion

DOE acknowledges that in the past, certain improvements following recommendations from external bodies have not always been fully implemented or sustained. Recognizing the importance of institutionalizing ongoing and new efforts identified in this response, DOE is committed to tracking implementation of these commitments. Moreover, DOE’s efforts will be guided by the overarching objectives identified in this document, so that DOE can assess not only whether the specific action was taken or not, but also whether it had the intended consequence and effectively addressed the broader goals – a signpost to guide substantive change.

Specific Actions

For the most part, the actions described in this response are to be owned and implemented by the three Departmental Under Secretaries who have line responsibility for stewardship of the National Laboratories – the Under Secretary for Nuclear Security (LANL, Sandia, and LLNL); the Under Secretary for Science and Energy (the 10 Office of Science labs, NREL, INL, and NETL); and the Under Secretary for Management and Performance (SRNL). That said, monitoring and reporting on these actions will necessarily require cross-agency collaboration. The Secretary will charge the **LOB with the responsibility to track implementation** of these actions and any other follow-on actions identified to achieve the objectives contained throughout this response. Similarly, **the LPC will be charged to serve as a steering committee for the overall effort** of re-examining the management framework and partnership for the National Laboratory

system and how it can best serve the public interest. The charters for each group will be modified to reflect these roles and responsibilities. Within the next 24 months, the LOB, working with the LPC, will conduct a review to assess whether the actions articulated here have had their desired impact.

In addition, **the DOE Office of Enterprise Assessments (EA)** is the organization responsible for performance of assessments on behalf of the Secretary and Deputy Secretary in the areas of nuclear and industrial safety, cyber and physical security, and other critical functions as directed by the Secretary and his Leadership team. EA also has been charged by the Secretary with identifying best practices across the enterprise which will include interfaces with the National Laboratories.

From an independent oversight perspective, DOE believes it would be most efficient to leverage existing bodies to support the implementation of the Commission's recommendations rather than creating a new external committee. DOE also notes that the NLDC indicated in its response to the Commission's report that "we would want to guard against such a body serving as the intermediary between the laboratories, DOE and Congress." DOE plans to look to **SEAB**. SEAB is a Federal Advisory Committee, composed of external members, which provides advice and recommendations to the Secretary on DOE's basic and applied research, economic and national security policy, educational issues, operational issues, and other activities as directed by the Secretary. SEAB specifically has a Task Force on DOE National Laboratories that was created to provide advice, guidance, and recommendations on important issues related to improving the health and management of the labs. Finally, DOE will include discussion of the implementation of the key objectives and actions in the **Annual State of the Laboratory System report** described above, tying results back to the desired outcome – a robust, efficient, effective National Laboratory System in service to the Nation.

3 CONCLUSION

The Commission's report identifies strengths of the National Laboratory system and provides recommendations for improvement. DOE is committed to executing the actions identified in this response to strengthen the DOE/laboratory partnership and to nurture and sustain the unique and valuable capabilities of the DOE National Laboratories.

APPENDIX: FULL SET OF COMMISSION'S RECOMMENDATIONS

Recommendation 1: The National Energy Laboratories provide great value to the Nation in their service to DOE's mission, the needs of the broader national science and technology community, and the security needs of the Nation as a whole. The Administration and Congress should provide the necessary resources to maintain these critical capabilities and facilities. It would also benefit all stakeholders if the key committees in Congress would develop a more orderly process of reviewing the National Laboratories, to replace the unrelenting pace of studies evaluating the performance of the DOE laboratories. For example, Congress could initiate a comprehensive review of the entire laboratory system in predetermined intervals.

Recommendation 2: Return to the spirit of the FFRDC model (stewardship, accountability, competition, and partnership). DOE and the National Laboratories must work together as partners to restore the ideal nature of the FFRDC relationship as a culture of trust and accountability. DOE should delegate more authority and flexibility to the laboratories on *how* to perform their R&D, and hold them fully accountable for their actions and results. For their part, to be trusted partners and advisors, the laboratories must be transparent with DOE about their planned activities ahead of time, as well as about their actions and results as they are carried out.

Recommendation 3: DOE and each laboratory should cooperatively develop a high level annual operating plan, with specific agreements on the nature and scope of activities at the laboratory, and milestones and goals that are jointly established. Within that framework, DOE should provide increased flexibility and authority to the laboratory to implement that plan. This increased flexibility must go hand-in hand with greater transparency and accountability. The annual operating plan is not intended to be a retrospective evaluation document, such as SC's Performance and Evaluation and Measurement Plan (PEMP) or NNSA's Performance Evaluation Plan (PEP). Instead it can provide high-level perspective for such evaluation plans. In other words, as envisioned by the Commission, the annual operating plan fits between the laboratory's long term strategic plan and its evaluation plan.

Recommendation 4: To improve DOE's ability to manage the laboratories, DOE should implement greater leadership and management development for its Federal workforce, including multi-directional rotational assignments with the laboratories.

Recommendation 5: DOE should separate NETL's R&D function from its program responsibilities (and call the R&D portion—not the program activities—NETL). Furthermore, consideration should be given to converting the new, research NETL into a government-owned, contractor-operated FFRDC. Whether or not the above steps are taken, NETL should increase its interactions and collaboration with universities.

Recommendation 6: DOE should abandon *incentive* award fees in the M&O contracts of the National Laboratories in favor of a fixed fee set at competitive rates with risk and necessary investment in mind.

In addition, DOE should adopt a broader and richer set of incentives and consequences to motivate sound laboratory management and enforce accountability.

Recommendation 7: DOE should give the laboratories and M&O contractors the authority to operate with more discretion whenever possible. For non-nuclear, non-high-hazard, unclassified activities, DOE should allow laboratories to use Federal, State, and national standards in place of DOE requirements. DOE should review and minimize approval processes.

Recommendation 8: DOE should modify its processes for developing directives, orders and other requirements to more fully engage subject matter experts for input on the benefits and impacts of the proposed requirements. When developing new requirements, DOE should use a risk-based model, ensuring the level of control over an activity is commensurate with the potential risk.

Recommendation 9: DOE should focus on making the use of CAS more uniform across the laboratories. DOE local overseers should rely on information from the CAS systems, with appropriate validation, as much as possible for their local oversight. The quality of CAS can be increased through peer reviews for implementation and effectiveness.

Recommendation 10: The role of the site office should be emphasized as one of “mission support” to the program offices at DOE and to the laboratories. The site office manager should be clearly responsible for the performance of the site office in support of the mission, and all staff in the site office, including the Contracting Officers, should report to the site office manager. Since site office effectiveness is so dependent on site office leadership, DOE should devote more effort to leadership training and professional development of field staff.

Recommendation 11: DOE should clarify the role and authority of the support centers. Wherever approval authority resides with a support center, DOE should remove it and reinstate it at either the site office or DOE headquarters, as appropriate.

Recommendation 12: All stakeholders should make maximum use of local assessments (performed by site offices and laboratories), with appropriate verification, to reduce duplicative assessments and burden on the laboratories.

Recommendation 13: DOE should establish a single point of control—within the Department or each stewarding program office—for all laboratory-directed data requests.

Recommendation 14: To reduce the number of funding buckets and minimize the accompanying transactional burden, DOE and its program offices should adopt and adhere to the following principles:

- Increase the size of funding increments through consolidation of B&R codes at the highest level possible within each program area.

- Extend timelines and minimize milestones for each increment of funding. Work breakdown structures must be formulated to focus on strategic goals rather than tactical milestones and reporting requirements.
- Within legal limits, institutionalize mechanisms for laboratory flexibility via notification, rather than formal approval, to move money between B&R codes on cross-cutting R&D objectives or closely interrelated research areas among DOE program offices.

Recommendation 15: Congress should repeal Section 301(d) of the FY 2015 Consolidated Appropriations Act as soon as feasible to remedy the transactional burden it creates for OMB, DOE Headquarters, and the laboratories when operating under a continuing resolution.

Recommendation 16: Other DOE program offices should adapt to their contexts the procedures and processes that DOE's Office of Science has in place for guiding and assessing the alignment of the laboratories under its stewardship with DOE's missions and priorities.

Recommendation 17: The processes that the Office of Science has in place for assessing the quality of the research being done by the 10 laboratories under its stewardship, and for assessing the quality of the research portfolio in each of its programs, should be adapted by the other DOE program offices.

Recommendation 18: There must be a government-wide reconsideration of the conference travel restrictions to enable conference participation at levels appropriate to both the professional needs of the existing scientific staff and to attract the highest quality staff in the future. The Commission is encouraged by DOE's recently revised guidance on conference-related activities and spending, and notes that the laboratories have been given more autonomy on this issue, while at the same time being held accountable for the appropriate use of taxpayer funds.

Recommendation 19: The Commission strongly endorses LDRD programs, both now and into the future, and supports restoring the cap on LDRD to 6 percent unburdened, or its equivalent. The Commission recognizes that, in practice, restoring the higher cap will have the largest impact on the LDRD programs of the NNSA laboratories.

Recommendation 20: DOE should manage the National Laboratories as a system having an overarching strategic plan that gives the laboratories the flexibility to pursue new lines of inquiry, so long as the research aligns with mission priorities. Once the research has matured to the point that a preferred or most promising approach can be identified, the Department should provide strategic oversight and guidance, including expert peer review, for the laboratory system to coordinate and potentially consolidate their programs to achieve the most effective and efficient use of resources.

Recommendation 21: Congress should recognize that the technical capabilities currently housed within the NNSA laboratories are essential to the Nation. Maintaining the nuclear explosive package capabilities in separate and independent facilities has proven effective and should continue, thereby

providing senior decision makers the highest possible level of confidence in the country's nuclear weapons stockpile.

Recommendation 22: DOE should establish policies and procedures to make the Strategic Partnership Projects (SPP) process more efficient, especially for work that is consistent with the annual operating plans, such as institutionalizing ongoing efforts to streamline the contracting process through more consistent use of umbrella SPP agreements and oversight mechanisms dedicated to shortening the timeline of the approval process; encouraging greater use of personnel exchanges and "customer relationship managers"; and creating a central point of contact in DOE headquarters to field questions from other Federal agency customers about where specific capabilities lie within the laboratory system.

Recommendation 23: DOE should support efforts to strengthen the Mission Executive Council.

Recommendation 24: DOE and its laboratories should continue to facilitate and encourage engagement with universities through collaborative research and vehicles such as joint faculty appointments and peer review.

Recommendation 25: All DOE programs and laboratories should fully embrace the technology transition mission and continue improving the speed and effectiveness of collaborations with the private sector. Innovative technology transfer and commercialization mechanisms should continue to be pursued and best practices in other sectors, including academia, should be examined.

Recommendation 26: DOE should determine whether the annual operating plans proposed by the Commission in Recommendation 3 could qualify as the "agency approved strategic plan" under the Stevenson-Wydler Technology Innovation Act of 1980, and the Fast-Track CRADA Program, and, if not, Congress should amend the law accordingly. For CRADAs with non-standard terms and conditions, DOE should define the acceptable range for each term and condition to greatly expedite negotiation and review/approval time.

Recommendation 27: Laboratories should pursue innovation-based economic development by partnering with regional universities.

Recommendation 28: DOE, the Administration and Congress should continue to support user facilities at the DOE laboratories. Peer review by relevant external advisory groups should continue to be used to decide which facilities to build and where to put all future upgrades and new and replacement user facilities.

Recommendation 29: DOE should continue implementing the ICR as a consistent method for tracking indirect costs across all laboratories, and encourage additional peer reviews to help mature the ICR as a tool for DOE, the laboratories, and other stakeholders.

Recommendation 30: DOE should provide greater transparency into laboratory indirect costs and publish an annual report of the overhead rates at each National Laboratory.

Recommendation 31: DOE should consider whether a capital budget will better serve its internal facilities and infrastructure budgeting and management needs.

Recommendation 32: DOE and the laboratories should continue efforts to improve laboratory facilities and infrastructure by halting the growth in deferred maintenance and speeding up the deactivation and decommissioning of excess facilities. DOE should work with Congress and OMB to agree upon the size and nature of the resources shortfall for facilities and infrastructure, and to develop a long-term plan to resolve it through a combination of increased funding, policy changes, and innovative financing.

Recommendation 33: DOE, the laboratories, Congress, and OMB should actively work together to identify appropriate situations and methods for utilizing innovative financing approaches, such as third-party financing, enhanced use leases, and other methods, including State funding, gifts, and leveraging partnerships with other Federal agencies.

Recommendation 34: DOE should maintain focus on increasing institutional capability and imposing greater discipline in implementing DOE project guidance, which is currently being incorporated into its DOE directive 413.3 B. Expanding on recent DOE efforts, there should be more peer reviews and “red teams” within DOE, among laboratories, other agencies, industry, and academia when appropriate.

Recommendation 35: The Commission supports the recent SEAB Task Force recommendation to put more resources into science and technology development for the EM program given the technical complexity of its projects.

Recommendation 36: A standing body should be established to track implementation of the recommendations and actions in this report, and to report regularly to DOE, the laboratories, the Administration, and the Congress on progress, results, and needed corrective actions. The standing body could assist congressional committees in developing a rational plan for future evaluations of the DOE laboratories.

**National Laboratory Directors Council
Executive Committee**

www.nationalallabs.org • nlDC-chair@nationalallabs.org

Terry Michalske, Chair
Dan Arvizu
Bill Goldstein
Chi-Chang Kao

November 16, 2015

The Honorable Ernest J. Moniz
Secretary of Energy
U.S. Department of Energy
1000 Independence Ave., SW
Washington, DC 20585

Dear Mr. Secretary,

On behalf of the Department of Energy, National Laboratory Directors Council (NLDC) we respectfully provide the following review of the Final Report of the Commission to Review the Effectiveness of the National Laboratories (CRENEL), "Securing America's Future: Realizing the Potential of the Department of Energy's National Laboratories".

We wish to compliment the CRENEL for the extremely thorough and complete analysis that they performed. We are impressed with the time, effort, and dedication of the CRENEL members to deeply examine each of the 17 laboratories' missions, capabilities, operations, and challenges. We also appreciate the direct access and multiple discussions that the CRENEL Co-Chairs, Jared Cohon and TJ Glauthier provided to the NLDC during the course of their work.

The NLDC is strongly supportive of the overall focus, structure, and recommendations contained in the Final Report. We find that the six themes developed by CRENEL provide useful context to organize and link their thirty-six specific recommendations against the backdrop of the larger strategic objectives. Our review of the CRENEL Final Report addresses each of the six themes, focusing on specific recommendations that we feel are most significant and will require greatest care developing the response. We appreciate the opportunity to work with DOE in preparing detailed responses to each of the CRENEL recommendations, and look forward to working together on implementation.

Recognizing Value

This section provided an excellent summary of the importance and unique S&T challenges of the National Laboratories' missions and their critical role in addressing highly complex multi-disciplinary long-term R&D challenges.

While this section contains only one specific recommendation (#1), we view this as extremely important to the development of greater understanding, appreciation, and partnership across Congress, DOE, and National Labs regarding the value of DOE laboratories. We believe that the DOE / NLDC partnership to organize Lab Days has been a valuable step to increase Congress' understanding of and support for the value of the network of DOE laboratories. We support continued opportunities for Congressional

The National Laboratory Directors Council Executive Committee is elected by the members of the Council, including the Lab Directors from Ames, Argonne, Berkeley, Brookhaven, Fermi, Idaho, Jefferson, Livermore, Los Alamos, National Energy Technology, National Renewable Energy, Oak Ridge, Pacific Northwest, Princeton, Sandia, Stanford, and Savannah River National Laboratories.

Members and Staff to see the collective value of the DOE laboratories including events such as Lab Days, Laboratory CODELs, and NLDC meetings with Congressional Committees and their Staff. Continued activities of this type will improve Congress' ability to better understand and assess the value and impact of DOE laboratories.

Rebuilding Trust

CRENEL places strong importance on the degree of trust between DOE and its National Laboratories from the point of view of current challenges and its role in underpinning our ability to address future opportunities. This section of the Final Report contains fourteen recommendations, representing nearly forty percent of the total. The NLDC supports the emphasis that CRENEL has placed on this theme. While we would agree that the overall level of trust between DOE and its National Laboratories can and should be improved, we appreciate CRENEL's recognition that the degree of trust varies across DOE programs and that some programs and their laboratories currently enjoy a high degree of trust. We support the focus of the CRENEL recommendations to create a more uniform approach across the DOE.

The NLDC strongly supports Recommendation #2, which emphasizes the need to return to the spirit of the FFRDC. In our view, this recommendation speaks to the core of the partnership and special relationship that must exist between DOE and its National Laboratories. We greatly appreciate the focus and attention that the current DOE leadership has placed on restoring this relationship and we are hopeful that this CRENEL recommendation will serve to guide the DOE / National Laboratory relationship into the future.

The NLDC believes that joint planning between DOE and its National Laboratories is one of the key factors to help build and strengthen that partnership. CRENEL's recommendations #3, #16, and #20 each speak to improvements and increased consistency in the laboratory planning process, pointing toward some of the exemplary practices of DOE's Office of Science. We believe that a process that integrates long-term strategic priorities with annual operating objectives will be most effective. Recommendation #3 calls for the creation of a high-level annual planning document that may help link the laboratory's long-term strategic plan and its annual evaluation plan. While we appreciate the intent of this specific recommendation, we are concerned that a new planning document may become duplicative with current planning documents such as PEMP. We recommend that DOE implement a planning process within each of its elements that links long-term strategy and annual operating needs, taking full advantage of the best practices in DOE's Office of Science and Nuclear Energy organizations.

Recommendation #6 provides a strong encouragement for DOE to abandon incentive award fees in the M&O contracts. The NLDC supports a move away from incentive award fee alone toward a "richer set of incentives and consequences" including extended award duration and increased authority over operations as called out in Recommendation #7 and #8. We suggest that the DOE engage a discussion with laboratory leadership, M&O contractor leadership, and DOE site and program to evaluate how best to support an effective approach to better manage risk and create incentives that encourage the highest level of performance. We note that NNSA has begun such a discussion. We further support Recommendation #9, which calls for the review of the use of CAS, and appreciate the DOE's recent decision to undertake such a review.

Given the importance of developing and sustaining a talented and diverse workforce at the DOE Laboratories, the NLDC suggests that DOE explore opportunities to provide M&O contractors with greater management flexibility aimed at increasing the National Laboratories' ability to attract and retain the current and future generation of workers.

Recommendation #5 pertains to the National Energy Technology Laboratory (NETL), the only DOE laboratory that is government owned and operated. The CRENEL observes that there is a need for “significantly increased clarity and focus on the R&D mission for the research staff at NETL and for others outside NETL who work with them.” The NLDC and specifically the Director of NETL agrees there is a need for increased focus on the R&D conducted by NETL’s scientists. The DOE should explore approaches to better integrate and synchronize NETL’s intramural and extramural research. In addition, the NLDC recognizes the need for more flexibility in NETL’s ability to invest through laboratory-directed research and development (LDRD) or other similar mechanisms.

Finally, the NLDC strongly supports Recommendation #14 calling for a reduction in the number of funding buckets. Such restrictions on the movement of resources act to impede the strategic relationship between DOE and its National Laboratories, creating a more transactional interchange. We understand that moving in this direction will require greater transparency and partnership on the part of the Laboratories. We are encouraged by the recent direction of DOE’s Office of Energy Efficiency and Renewable Energy in this regard.

Maintaining Alignment and Quality

We are pleased that CRENEL found there was strong overall mission alignment between DOE programs and the National Laboratories. NLDC supports consistent and effective long-term and annual planning between DOE and its National Laboratories as a means to promote even greater mission alignment going forward. As called out in Recommendation #16, the planning process used by DOE’s Office of Science contains elements that lead to increased mission alignment and could be adapted for use in other DOE mission areas.

The NLDC appreciates CRENEL’s recognition of the important role LDRD plays in the vitality of the National Laboratories, facilitating their ability to “adapt, retool, invest in staff capabilities, and to enter new research areas”. We are pleased to see and fully endorse CRENEL’s Recommendation #19 to restore the cap on LDRD to six percent unburdened, or its equivalent.

The CRENEL’s treatment of the appropriate levels of duplication of research addresses the inherent challenge in balancing competition for new ideas with the need to efficiently focus resources. The NLDC is supportive of recent examples such as the Grid Modernization Initiative and Big Ideas. We agree with CRENEL that these examples represent a step in the right direction. We understand that finding the right balance can be difficult and that there is most certainly not a standard approach that should be applied. It must also be recognized that establishing an efficient focus may require prioritization and partnerships across DOE program areas as well as its National Laboratories. While we agree with Recommendation #20, we would also add the need for DOE and its National Laboratories to partner together early on in the identification of highest priority focus areas for the future.

With regard to Recommendation #21, the NLDC fully endorses the CRENEL’s commitment to maintaining and strengthening the unique competencies at the NNSA laboratories needed to provide the highest level of confidence in our country’s nuclear deterrent.

Maximizing Impact

This theme in the CRENEL Final Report focuses on the broader value that the DOE National Laboratories provide through their work with entities outside DOE including other Federal Agencies, academia, and private sector commercial partners through Strategic Partnership Projects (SPP).

Overall, the CRENEL recommends greater strategic engagement between DOE and other Federal Agencies along with a streamlining of the process needed to gain approval for SPP. The NLDC is supportive of Recommendation #22 to create a more coherent interface between DOE, its National Laboratories, and other Federal Agencies. However, in responding to this recommendation we strongly caution DOE against creating a “gate keeper” function that could add additional steps and further complicate SPP.

CRENEL recognizes the high level of collaboration that exists between DOE Laboratories and universities. However, partnering with industry and transitioning technology is specifically called out in Recommendations #25 and #26 as an area where improvement is needed. While we agree with the assessment of barriers and the intent of these recommendations, we believe more is necessary to guide improvement. Recommendation #25 is not sufficiently specific to address the inconsistency among labs or program offices. Recommendation #26 is helpful, but more is needed to drive major improvement. In order for technology transfer to be a priority, each program office must clearly articulate that priority, resource it directly, and hold laboratories accountable to improve their performance.

NLDC appreciates CRENEL’s call for continued support for user facilities at the DOE Laboratories (Recommendation #28).

Managing Effectiveness and Efficiency

As CRENEL points out, the DOE Laboratories are often criticized for being too expensive. We appreciate CRENEL’s recognition that laboratory leadership is extremely mindful and proactive in controlling overhead rates. The CRENEL analysis shows non-NNSA laboratory overhead rates are comparable with top-funded R1 universities. The higher cost of NNSA laboratories is an understandable outcome of their nuclear and classified missions. NLDC supports continued transparency (Recommendation #29) across major sectors of the National Laboratory population.

The NLDC agrees with CRENEL that better management of DOE Laboratories’ collective facilities and infrastructure is necessary. We also support recent steps taken by DOE to accurately assess the scope of deferred maintenance and associated budget shortfall. We strongly support Recommendations #32 and #33 to continue efforts to work with Congress and OMB to better understand the magnitude of the problem, develop a prioritized plan of action, and utilize the full spectrum of approaches including increased funding, policy changes and innovative financing to address the shortfall.

In many cases, large-scale projects in NNSA and EM represent one-of-a-kind programs and facilities. We agree with CRENEL Recommendation #34 to expand recent DOE efforts to place more emphasis on peer review and “red teams” to help assess risk and identify alternatives. In addition, the EM program faces significant technical challenges as it addresses the remaining, more challenging work ahead. As CRENEL points out in Recommendation #35, better scientific and technical basis will be needed to successfully address the complex problems ahead.

Ensuring Lasting Change

Perhaps the most challenging recommendation from the CRENEL Final Report is the call for a standing body to track implementation and actions in the CRENEL Report with the intent to minimize the need for new congressional commissions (Recommendation #36). The NLDC agrees with the intent of the recommendation and understands the tradeoffs regarding where such a body would be charged and housed. It is not clear to us that there is a “perfect” place for such a standing body. However, we would

want to guard against such a body serving as the intermediary between the laboratories, DOE and Congress. It is the view of NLDC that open, frequent, and strategic communications between the DOE, NLDC, and Congress are the best means to ensure the greater understanding that will promote lasting change in how our country best utilizes the enormous resource that is contained in the DOE Laboratories.

It is our hope that this brief review of the CRENEL recommendations provides value to you and to the DOE. We stand ready to fully support the DOE in its development of detailed response to each of the CRENEL's recommendations. Thank you for the opportunity to provide our input on the CRENEL Final Report.

Sincerely,

A handwritten signature in black ink, appearing to read 'T. Michalske', with a long horizontal flourish extending to the right.

Dr. Terry A. Michalske
Chair, National Laboratory Directors Council
Director, Savannah River National Laboratory

SECRETARY OF ENERGY ADVISORY BOARD

MEMORANDUM FOR: SECRETARY OF ENERGY

FROM: Secretary of Energy Advisory Board (SEAB)

DATE: January 26, 2016

SUBJECT: Task Force comments on the *Final Report of the Commission to Review the Effectiveness of the National Energy Laboratories*

You have charged the SEAB National Laboratory Task Force to review studies of the DOE National Laboratories as they appear and to give you advice about what your response should be to their findings and recommendations. This SEAB letter transmits the comments of its National Laboratories Task Force on the recently released report of the Commission to Review the Effectiveness of the National Energy Laboratories (CRENEL), entitled *Securing America's Future: Realizing the Potential of the DOE's National Laboratories*. That committee, co-chaired by TJ Glauthier and Jared Cohen, was formed pursuant to Section 319 of the Consolidated Appropriations Act, 2014 (Public Law No. 113-76), and was charged to evaluate the laboratories'

“...alignment with the Department's strategic priorities, duplication, ability to meet current and future energy and national security challenges, size, and support of other Federal agencies,...the efficiency and effectiveness of the laboratories, including assessing overhead costs and the impact of DOE's oversight and management approach,...the effectiveness of the Department's oversight approach and the extent to which LDRD funding supports recruiting and retention of qualified staff¹.”

The CRENEL report is based on extensive fact finding, including significant testimony from numerous stakeholders and visits to all of the labs in the DOE complex. The final report, issued on October 28, 2015, follows the Commission's report of February 27, 2015, and contains a total of 36 recommendations across 6 primary themes: recognizing value,

¹ *Final Report of the Commission to Review the Effectiveness of the National Energy Laboratories*, Volume 1, October 28, 2015, p 1.

rebuilding trust, maintaining alignment and quality, maximizing impact, managing effectiveness and efficiency, and ensuring lasting change. For convenience, Appendix 1 of this letter provides a copy of the tabulated recommendations from the Commission's report, grouped by theme and identifying a proposed owner for each.²

Overall, our SEAB Task Force endorses the CRENEL report. We find the analysis and recommendations from the Commission to be consistent with the numerous prior investigations, commissions and studies that have reviewed the Laboratories over the years. The Commission's report is well aligned in areas that overlap with previous work and recommendations from our Task Force. We comment below on several specific items but, in general, we view the Commission's report as a thorough recitation of a well-told story that repeats and reinforces important recommendations to improve the efficiency of laboratory operations, planning and research outcomes, while endorsing the value, the direction and operations of the current laboratory system. As with the majority of recent reports, the Commission decries the current environment where oversight and regulation are increasingly imposed on the national laboratories and Congress and the Department have not followed-up or implemented recommendations to streamline the process and the management of the labs. Speaking to this issue, the Commission's final recommendation states,

A standing body should be established to track implementation of the recommendations and actions in this report, and to report regularly to DOE, the laboratories, the Administration, and the Congress on progress, results, and needed corrective actions. The standing body could assist Congressional committees in developing a rational plan for future evaluations of the DOE laboratories.³

Later in this letter, you will find SEAB's recommendation on how the "standing body" could be created and who should establish and maintain it.

² The Commission appendix would be even more useful if the Commission suggested which office in DOE should be the "responsible actor" for each recommendation. Experience shows that absent direct secretarial intervention, bureaucratic interests greatly delay the implementation of meritorious proposals for change.

³ *ibid*, p 63.

We first point out areas of emphasis in the Commission's report that reinforce points raised in your SEAB Task Force's report:

1. The Commission speaks to the need to reestablish the model in which the laboratories operate as FFRDCs and roles are appropriately established: "...the government is responsible for setting the "*what*" of strategic and program direction to meet the Nation's needs, while the contracted partners, along with the laboratories they manage and operate, are responsible for determining precisely "*how*" to meet the technical and scientific challenges and to carry out programs."⁴ In particular, the Commission highlights the need to clearly establish where responsibility rests amongst the many stakeholders involved in the lab management and delivery system (the laboratory director and the director's leadership team, DOE Headquarters sponsoring program offices, DOE Site (or in the case of the NNSA, Field) Offices, DOE Service Centers, DOE operational oversight offices, the M&O contractor). This finding is directly aligned with the primary focus in our Task Force's report (Recommendation 1.1) to use the Laboratory Policy Council to clarify the roles and responsibilities for mission execution at the laboratories and direct the Under Secretary for Management and Performance to lead the Laboratory Operations Board in implementing these changes.
2. The Commission's report recommends a number of actions that can be taken to provide immediate change to the overly burdensome detailed management of the laboratories that is inconsistent with the philosophy of a Government Owned, Contractor Operated (GOCO) laboratory. The Commission endorses the recommendation of the Augustine-Mies Panel to eliminate the incentive portion of the M&O contract award, replacing it with a competitive fixed fee arrangement. We support this recommendation as a way to reduce complex bureaucracy, which is delivering limited operational performance leverage.

⁴ *ibid*, p iv.

Other short term actions recommended in the CRENEL report are consistent with the SEAB Task Force's recommendation for laboratory management "experiments." The Commission suggests reestablishing local and rapid decision making for conference participation (which it deems vital to maintaining the intellectual excellence of laboratory staff), establishing a single point of control within the Department for all laboratory data requests, and removing approval authority from Support Centers, clearly articulating their *support* role.

Finally, it is worth noting that the Commission specifically recommends separating the National Energy Technology Laboratory (NETL), currently the only Government Owned, Government Operated (GOGO) laboratory in the system, into two independent parts – a standard GOCO to handle the research and development mission and a contracting office to handle the disbursement of funds to external partners.

We find merit in all these CRENEL suggestions.

3. As noted in numerous reviews and reports over the last decade, the Commission observes that the laboratories can make a greater contribution to the national economy and its competitiveness, if the laboratories have effective technology transfer processes in place. The Commission clearly articulates the larger view of what technology transfer means, commenting that in addition to traditional Cooperative Research and Development Agreements, Work for Others, or licensing activities, significant technology transfer occurs through the world class user facilities, through the maturing of early career research talent and through personnel flow and rotation between the laboratories, academia and industry. SEAB strongly endorses this view. However, we believe that CRENEL has failed to comment on an important issue on this topic. As the Interim Report by the SEAB National Laboratory Task Force suggests, there is some level of confusion and inconsistency about whether economic development and national competitiveness are part of the mission of National Laboratories. To address this directly, the SEAB report has recommended (#3.1) that you issue a policy statement that

creating value for the private sector through the use of technology transfer, research facilities and workforce is part of the National Laboratory mission. We continue to advocate this.

4. The Commission provides a thorough analysis of the rationale and current uses of Laboratory Directed Research and Development (LDRD) and finds clear benefits from the program for supporting high-risk, potentially high reward early-stage research, for exploring research avenues that may be new to the laboratory or the complex, and as a significant tool that “.. enables laboratories to develop and invest in its workforce for both the short and long term.”⁵ As with numerous recent reviews, including your Task Force, the Commission “...strongly endorses LDRD programs, both now and into the future, and supports restoring the cap on LDRD to 6 percent, unburdened, or its equivalent.”⁶
5. The Commission notes positively your strongly articulated commitment and the steps being taken by the Department to ensure alignment of the laboratories in its strategic planning processes. The Office of Science (SC) process is described in detail:

During this Laboratory Strategic Planning process, SC requires laboratory leaders to define the long-range visions for their respective laboratories. This information provides a starting point for discussion about each laboratory’s future directions, immediate and long-range challenges, and resource needs. DOE and the laboratory leaders settle on new research directions and the expected development or sustainment of capabilities. In addition, external advisory committees provide advice on establishing research and facilities priorities; determining proper program balance among disciplines; and identifying opportunities for inter-laboratory collaboration, program integration, and industrial participation.⁷

The report further describes the effective processes SC uses to review its alignment to DOE strategy and connect both its strategic and tactical execution to its annual

⁵ *ibid*, p 66.

⁶ *ibid*, p 43. SEAB notes with some sadness that use of the word “equivalent” apparently conceals inability to agree on a simple and transparent method to calculate the 6% because some labs are jockeying for more complex formulae that result in greater LDRD.

⁷ *ibid*, p 35.

Performance and Evaluation and Measurement Plan (PEMP.) The Commission calls for the adaptation of these core, successful processes to all the DOE laboratories. As you know, the SEAB Task Force made a similar recommendation and proposed that the DOE Laboratory Operations Board be charged with the task of implementing a DOE-wide effort to identify, manage, and resolve issues affecting the management, operations, and administration of the National Laboratories.

One additional point that bears mentioning is the Commission's analysis and endorsement of recommendations made by both the NRC⁸ and, more recently SEAB⁹, to provide a modest investment stream for science and technology development for the Environmental Management program, stating that, "Success of the cleanup effort will require significant new understanding of the science and with this understanding, development of new technology."¹⁰

As noted above, CRENEL calls for the establishment of a "standing body" to track implementation of the recommendations made in its report. SEAB recommends that because most of the National Laboratories are managed by their respective offices of the Under Secretaries for Science & Energy and Nuclear Security, and many of the recommendations involve management and performance, the "standing body" should be formed by the three Under Secretaries – Science & Energy, Nuclear Security and Management & Performance – with the Under Secretary for Management & Performance serving as the Chair of this standing body. The purpose of this standing body would be to track and enforce timelines and priorities to make process changes and report directly to the Secretary.

⁸ National Research Council, Committee to Evaluate the Science, Engineering, and Health Basis of the DOE's Environmental Management Program, *Improving the Environment: An Evaluation of DOE's Environmental Management Program*, (Washington DC: NRC, 1995), 21.

⁹ SEAB, *Report of the Task Force on Technology Development for Environmental Management*, (Washington, DC: DOE, 2014);

¹⁰ *Final Report of the Commission to Review the Effectiveness of the National Energy Laboratories*, Volume 1, October 28, 2015, p 59.

We also note a few points where we feel that the CRENEL report could have been a bit more assertive in its recommendations.

1. The Congressional charge to the Commission implicitly calls for a judgment about whether the size of the DOE national laboratory network is too big, too small, or just right given the current and future technology needs of the country in DOE's mission areas of responsibility: science, energy, national security, and environmental management. The Commission does not directly address this central question but their implicit answer is that the DOE national labs are doing their job, their effectiveness and efficiency is impaired by over regulation, and the amount of public resources is "just right" although at several points there is a hint that more resources would be welcome. This central conclusion would be more convincing if the Commission had examined a range of different organizational arrangements, quite different from the current structure, and compared the pros and cons of each.
2. The CRENEL report also does not offer a timeline for its recommendations to be implemented. Because many of the recommendations are similar to the ones offered by the SEAB Task Force, we suggest that you use the timeline offered by the SEAB Task Force report.

In summary, we find that the CRENEL Commission report provides additional support for the numerous findings and recommendations that have already been voiced about the value and performance of the DOE national laboratories. The Commission also repeats and underscores the many recommendations that have been made to streamline the management and oversight of the laboratories, thus making them more efficient and of greater value to the scientific and technological strength of the country. It is up to you and your successors to see that the meritorious suggestions for change are put into place.

Appendix 1 Summary of the Commission's Recommendation¹¹

Section	Theme	Section	Theme
2	Recognizing Value	5	Maximizing Impact
3	Rebuilding Trust	6	Managing Effectiveness and Efficiency
4	Maintaining Alignment and Quality	7	Ensuring Lasting Change

Table 4. Responsible Actors for Each Recommendation and Cross-References to Volume 2

Volume 1 Chapter & Section Reference	Rec. No.	Recommended Action	Responsible Actor(s)	Volume 2 Chapter & Section Reference
2.C	1	The Administration and Congress should recognize the value of the National Laboratories and provide the necessary resources to maintain their capabilities and facilities. Congress should also develop a more orderly process of reviewing the laboratories.	Administration and Congress	1.E
3.A.1	2	Department of Energy (DOE) and the laboratories must work together to restore the ideal Federally Funded Research and Development Center (FFRDC) relationship as one of trust and accountability. DOE should delegate more authority and flexibility to the laboratories and hold them accountable. The laboratories must be more transparent with DOE about their activities.	DOE and Laboratories	2.C
3.A.1	3	DOE and each laboratory should jointly develop an annual operating plan, with agreements on the nature and scope of the laboratory's activities, including goals and milestones. DOE should then provide increased flexibility and authority to the laboratory to implement that plan.	DOE and Laboratories	2.C
3.A.1	4	To improve DOE's ability to manage the laboratories, DOE should implement greater leadership and management development for its Federal workforce, including multi-directional national assignments.	DOE	2.C
3.A.1	5	DOE should separate the National Energy Technology Laboratory's (NETL) research and development (R&D) function from its program responsibilities. Consideration should be given to converting the new research NETL into an FFRDC. NETL should increase its interactions with universities.	DOE and Congress	2.C
3.A.2	6	DOE should abandon incentive award fees in favor of a fixed fee set at competitive rates with risk and necessary investment in mind. DOE should also adopt richer set of incentives to motivate sound management.	DOE	2.C

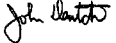
¹¹ Reproduced directly from Table 4 of the *Final Report of the Commission to Review the Effectiveness of the National Energy Laboratories*, Volume 1, October 28, 2015.

Volume 1 Chapter & Section Reference	Rec. No.	Recommended Action	Responsible Actor(s)	Volume 2 Chapter & Section Reference
3.B.1	7	DOE should give the laboratories the authority to operate with more discretion whenever possible. For non-nuclear, non-high-hazard, unclassified activities, DOE should allow laboratories to use Federal, State, and national standards in place of DOE requirements. DOE should review and minimize approval processes.	DOE	3.G
3.B.1	8	DOE should modify its processes for developing directives, orders and other requirements to get more input on the benefits and impacts of the proposed requirements. When developing new requirements, DOE should use a risk-based model, ensuring the level of control over an activity is commensurate with the potential risk.	DOE	3.G
3.B.2	9	DOE should focus on making the use of Contractor Assurance System (CAS) more uniform across the laboratories. DOE local overseers should rely on information from the CAS systems, with appropriate validation, as much as possible for their local oversight. The quality of CAS can be increased through peer review for implementation and effectiveness.	DOE	4.D
3.B.2	10	The role of the site office should be emphasized as one of "mission support." The site office manager should be responsible for the performance of the site office, all staff, including the Contracting Officers, should report to the site office manager. DOE should devote more effort to professional development of field staff.	DOE	4.D
3.B.2	11	DOE should clarify the role and authority of the support centers. Wherever approval authority resides with a support center, DOE should remove it and restate it at the site office or DOE headquarters.	DOE and External Auditors	5.C
3.B.3	12	All stakeholders should make maximum use of local assessments (performed by site offices and laboratories), with appropriate verification, to reduce duplicative assessments and burden on the laboratories.	DOE	5.C
3.B.3	13	DOE should establish a single point of contact within the Department for all laboratory-directed data requests.	DOE	6.D
3.B.4	14	DOE should increase the size of funding increments by consolidating budget and reporting (B&R) codes, extending timelines and minimizing milestones for each funding increment and institutionalizing mechanisms to move money between B&R codes for related research areas.	Congress	6.D
3.B.4	15	Congress should repeal Section 371(d) of the FY 2014 Consolidated Appropriations Act as soon as feasible to remedy the transactional burden it creates for the Office of Management and Budget (OMB), DOE Headquarters, and the laboratories.	DOE	7.E
4.A	16	Other DOE program offices should adapt the processes that DOE's Office of Science has in place for guiding and assessing the alignment of the laboratories under its stewardship with DOE's missions and priorities.	DOE	7.E
4.B	17	The processes that Office of Science has in place for assessing the quality of the research being done by its laboratories and for assessing the quality of its research portfolio should be adapted by the other program offices.	DOE and OMB	7.E
4.B	18	There must be reconsideration of the travel restrictions to enable conference participation at levels appropriate to the professional needs of the visiting scientific staff and to attract the highest quality staff in the future. The Commission is encouraged by DOE's recently revised guidance on conference-related expenses in spending.	Congress	8.D
4.C	19	The Commission strongly endorses Laboratory Directed Research and Development (LDRO) programs, both now and into the future, and supports restoring the cap on LDRO to 8 percent unencumbered, or its equivalent. The Commission recognizes the importance of the research being done in the laboratories and the impact on the LDRO programs of the National Nuclear Security Administration laboratories.	DOE	7.E
4.D	20	DOE should manage its laboratories as a system having an overarching strategic plan that gives the laboratories the flexibility to pursue new lines of inquiry. Once the research has sufficiently matured, DOE should provide strategic oversight and guidance to coordinate and potentially consolidate their programs.	DOE	7.E

Volume 1 Chapter & Section Reference	Rec. No.	Recommended Action	Responsible Actor(s)	Volume 2 Chapter & Section Reference
4.D	21	Congress should recognize that the capabilities currently housed within the NNSA laboratories are essential to the Nation. Maintaining these capabilities in separate and independent facilities should continue.	Congress	7.E
5.A	22	DOE should establish techniques to make the Strategic Partnership Projects process more efficient.	DOE	9.E
5.A	23	DOE should support efforts to strengthen the Mission Executive Council.	DOE	9.E
5.B	24	DOE and its laboratories should continue to facilitate and encourage engagement with universities through collaborative research and vehicles such as joint faculty appointments and peer review.	DOE and Laboratories	10.C
5.C	25	DOE and the laboratories should fully embrace the technology transition mission and continue improving the speed and effectiveness of collaborations with the private sector. Innovative transfer and commercialization mechanisms should be pursued and best practices in other sectors should be examined.	DOE and Laboratories	11.E
5.C	26	DOE should determine whether the annual operating plans proposed by the Commission could qualify as the Strategic Partnership Projects and, if not, whether they could be included in the annual operating plans. The Fast Track Cooperative Research and Development Agreement Program. If not, Congress should amend the law accordingly.	DOE and Congress	11.E
5.C	27	Laboratories should pursue innovation-based economic development by partnering with regional universities.	Laboratories	11.E
5.D	28	DOE and Congress should continue to support user facilities at the DOE laboratories. External advisory groups should continue to be used to decide which facilities to build and how to upgrade existing facilities.	DOE, Administration, and Congress	12.C
6.A	29	DOE should continue implementing the Institutional Cost Report (ICR) as a method for tracking indirect costs associated with DOE laboratories and other stakeholders.	DOE	13.E
6.A	30	DOE should provide greater transparency into laboratory indirect costs and publish an annual report of the overhead rates at each individual National Laboratory.	DOE	13.E
6.B	31	DOE should consider whether a capital budget will better serve its internal facilities and infrastructure budgeting and management needs.	DOE	14.D
6.B	32	DOE and the laboratories should continue efforts to improve facilities and infrastructure by halting the growth in deferred maintenance and speeding up the deactivation and decommissioning of excess facilities. DOE should work with Congress and OMB to agree upon the size and nature of the resources shortfall for facilities and infrastructure, and to develop a long-term plan to resolve it through a combination of increased funding, policy changes, and innovative financing.	DOE, Laboratories, Congress, and OMB	14.D
6.B	33	DOE, the laboratories, Congress, and OMB should actively work together to identify appropriate situations and incentives for utilizing innovative financing approaches, such as third-party financing, enhanced use licenses, and other methods, including State funding, gifts, and leveraging partnerships with other federal agencies.	DOE, Laboratories, Congress, and OMB	14.D
6.C	34	DOE should maintain focus on increasing institutional capability and imposing greater discipline in implementing DOE project guidance, which is currently being incorporated into its DOE directive 413.3 B. There should be more peer reviews and red teams within DOE.	DOE	15.G
6.C	35	The Commission supports the recent Secretary of Energy Advisory Board Task Force recommendation to put more resources into science and technology development for the EM program given the technical complexity of its projects.	DOE, Administration, and Congress	15.G
7.C	36	A standing body should be established to track implementation of the recommendations and actions in this report, and to report regularly to DOE, the laboratories, the Administration, and the Congress. This body could assist Congress in developing a rational plan for future evaluations of the DOE laboratories.	DOE, Administration, and Congress	16.D

SECRETARY OF ENERGY ADVISORY BOARD

MEMORANDUM FOR: SECRETARY OF ENERGY

FROM: John Deutch 
Chair, Secretary of Energy Advisory Board (SEAB)

CC: Deputy Secretary of Energy and SEAB Members

DATE: February 17, 2015

SUBJECT: SEAB comments on the Report of the Congressional Advisory Panel on the Governance of the Nuclear Security Enterprise

You requested that your Secretary of Energy Advisory Board review the recent *Report of the Congressional Advisory Panel on the Governance of the Nuclear Security Enterprise* (Augustine-Mies Panel) and give you its opinion about how the department should respond to the advisory panel's recommendations.¹ This letter report, prepared by six members and approved by the board, transmits our views.²

Congress established the Augustine-Mies Panel and charged it to address the many concerns that have existed for some time about impediments to the NNSA performing its vital national security mission of maintaining the nuclear weapons stockpile, advancing U.S. nonproliferation policies and programs, and supporting the nuclear navy. The concerns are wide-ranging and include cost and performance of the weapons program, maintaining the morale and quality of the technical staff, avoiding cost overruns of major projects, and reducing program management and direction from NNSA that encourages risk avoidance, excessive control, and inadequate attention to program outcomes.

The Augustine-Mies Panel was directed to examine alternative models that would enable

¹ *A New Foundation for the Nuclear Enterprise*, Report of the Congressional Advisory Panel on the Governance of the Nuclear Security Enterprise, co-chaired by the Honorable Norman Augustine and Admiral Richard Mies, USN (Ret.), November, 2014.

² The six SEAB members are: Brent Scowcroft, Chair SEAB Nuclear Security Subcommittee, Al Carnesale, John Deutch, Steven Koonin, Richard Meserve, and Ellen Tauscher.

transformation and dramatic improvement in the DOE/NNSA enterprise. The Panel considered four different models: (a) maintaining the current somewhat ambiguous quasi-independent status of the NNSA within DOE, (b) recreating the NNSA as an independent agency, (c) transferring responsibility for the NNSA to the Department of Defense, and (d) moving from a separately organized NNSA within DOE to a new Office of Nuclear Security, ONS, integrated into a DOE that is led by a cabinet secretary who is committed to and knowledgeable about nuclear security issues. The Director of ONS would be given substantial authority and responsibility for implementing the department's nuclear security program.

The Augustine-Mies Panel recommends the last option: integrating a new ONS into DOE with an obligation that DOE leadership, the secretary and deputy secretary, have knowledge and commitment to the nuclear security responsibilities of the department.

The members of SEAB, many of whom have deep experience with DOD and DOE, unanimously and strongly agree with the Augustine-Mies Panel that a new ONS should be integrated into DOE and that the leadership of DOE should have knowledge of, and commitment to, the nuclear security responsibilities of the department. SEAB stresses that the consequence of taking no action risks continuing deterioration of DOE's ability to fulfill its national security mission and the morale throughout the complex. We urge you to encourage the administration and Congress, vigorously and vocally, both publicly and within the DOE/NNSA community, to endorse the Panel's constructive approach and implement the needed legislative change to the DOE Organization Act.

SEAB believes you demonstrate that there are individuals who can provide the kind of secretarial leadership that is needed to make *A New Foundation for the Nuclear Enterprise* a success, and your example was not insignificant in bringing the Panel to its organizational recommendations.

The Panel helpfully proposes in Appendix C of their report changes to the language in the 2000 statutory amendment establishing the NNSA in the 1977 DOE Authorization Act.

SEAB believes that these changes are directionally correct; however balance with the energy mission should not be forgotten. Several of the Panel's suggestions are intended to underscore the importance of national security, especially the nuclear weapons program, in the department missions. Suggestions such as changing the name of the department, requiring both the Armed Services and Energy and Natural Resources Committees to confirm the Secretary and Deputy Secretary, establishing qualifications of the president's nominees for these positions, and extending the term of the Director of ONS are sure to provoke considerable debate. We did not discuss the pros and cons of these suggestions but are prepared to do so if you believe it would be useful to have SEAB's opinion.

The Augustine-Mies Panel does a thorough job of identifying changes that are needed to bring their vision of a *New Nuclear Enterprise* into a reality. The Panel presents a daunting list of 65 recommendations organized into five broad categories. Those with senior government management experience (and many members of the Panel have such experience) will recognize that the phrases in these recommendations such as "The Secretary should..." or "the Director of ONS should..." do not indicate an immediate way forward to implementation. It will take more than a few years to achieve the result the Augustine-Mies Panel seeks. The Panel lists 15 useful indicators of progress in the desired realignment and suggests a follow-on evaluation in two years; SEAB suggests you might consider establishing a process to report semi-annually to Congress on the progress made in implementing the recommendations.

SEAB wishes to offer remarks on five issues that the board believes deserve your special attention.

- o The DOD is the main customer for DOE's weapons technology and products. The Nuclear Weapons Council is the principal mechanism for harmonizing requirements and resources that define an executable five-year plan. The Panel identifies current weakness in this mechanism, but stops short of recommending a high-level, DOD executive who has experience and expertise in the weapons complex to support the Council and to manage the DOD's role in the day-to-day matters between the two

agencies. If the principal customer and the supplier of defense programs are not in agreement about requirements and resources, it is inevitable that differences will be resolved by less qualified individuals and result in adoption of a less sound program with unsatisfactory cost and performance outcomes.

- The Panel gives a thorough and telling account of the breakdown in the working relationship between the NNSA and its M&O contractors. It is basically a story of a change from a mission and outcome driven FFRDC orientation to an excessive transactional, cost minimization, and risk avoidance orientation. But in our view the Panel falls short in suggesting convincing, concrete steps that will reestablish the credibility and trust between the government and the M&O contractors.

The Panel recommends a shift from reliance on award fees to fair fixed fees with contract renewal and extension as the main mechanism to reward or penalize contractor performance. SEAB agrees that too much reliance has been placed on the award fee as a performance incentive tool but doubts the change recommended by the Panel is sufficient to reestablish an FFRDC relationship.

The SEAB National Laboratory Task Force believes that in addition, more attention needs to be placed on restoring clarity and non-overlapping responsibility and accountability for programmatic, functional, and financial activities among the various stakeholders: NNSA headquarters, field sites, M&O contractors, and laboratory management. In short, there is no sure formula for reestablishing an effective and collaborative working relationship, but as the Panel's report makes clear, doing so remains a key objective.

- The Panel makes many important suggestions about improving operations at the laboratories and planning for necessary infrastructure modernization and renewal. While the Panel acknowledges the importance of human capital in one of its recommendations, SEAB believes that substantially more attention should be paid to improving the morale and creative atmosphere at the weapons laboratories and the

production facilities.³ The tension that has existed between the NNSA and M&O contractors is corrosive to maintaining the technical excellence that is the essential underpinning of the laboratory capability. Finding and keeping the most talented employees is the responsibility of every part of the management chain, especially the laboratory leadership. The Panel recognizes the importance of the Laboratory Directed Research & Development (LDRD) program for this purpose and endorses a funding level no less than 6%; SEAB agrees.

- SEAB believes there is significant opportunity for greater programmatic connections between the NNSA and the other DOE science/energy national laboratories that would further the integration objective advanced by the Augustine-Mies panel. Areas where increased collaboration has promise are high performance computing, nuclear physics, fusion, and materials science.
- The unique skills of the nuclear security laboratories are important to other agencies: including the Department of Defense, the Department of State, the Department of Homeland Security, and the Intelligence Community. This work for others, WFO, is growing at the labs and presents management challenges: the non-DOE agencies pay for a portion of the project cost, but not as a general matter the investment necessary to maintain the intellectual and physical infrastructure of the laboratories; a need to assure that the work does not interfere with the fulfillment of the labs weapons mission; and confirmation that the work is consistent with the laboratory's mission. Non-DOE customers object to the cost, the complex and long approval process, and delays in completion of the work.

Congress clearly intends that the laboratories contribute to a broad range of national security missions and provide assistance to the non-DOE agencies. The Mission Executive Council (MEC) was launched by agreement among the principals of the affected agencies to facilitate coordination among the group so that the laboratories

³ The Panel Recommendation 12.3 is: "**The Director should ensure that the strategy and plan identify investments in the needed skills in the workforce.** There needs to be an analysis of the level and skill mix of the workforce necessary to meet future requirements, and an assessment of the steps required to recruit and retain them."

could serve this broader mission. The Panel notes that the MEC has not been fully effective to date and makes recommendations to improve its functioning. While DOE shoulders the central responsibility for assuring the health of the laboratories, their management and funding, we agree that the Secretary of Energy and the Director of the ONS should revitalize the MEC as a means for improving coordination among the agencies. The aim should be to assure that the agencies are aware of the special capabilities of the labs and that the laboratories are aware of the emerging challenges confronting the agencies. We understand that the National Academies have prepared a report for NNSA that explores these issues more fully.

SEAB strongly supports the Augustine-Mies report and we stand ready to receive further tasking from you to assist the department in this important realignment process.

SECRETARY OF ENERGY ADVISORY BOARD

MEMORANDUM FOR: SECRETARY OF ENERGY

FROM: Secretary of Energy Advisory Board (SEAB)

DATE: January 26, 2016

SUBJECT: Task Force comments on the *Final Report of the Commission to Review the Effectiveness of the National Energy Laboratories*

You have charged the SEAB National Laboratory Task Force to review studies of the DOE National Laboratories as they appear and to give you advice about what your response should be to their findings and recommendations. This SEAB letter transmits the comments of its National Laboratories Task Force on the recently released report of the Commission to Review the Effectiveness of the National Energy Laboratories (CRENEL), entitled *Securing America's Future: Realizing the Potential of the DOE's National Laboratories*. That committee, co-chaired by TJ Glauthier and Jared Cohen, was formed pursuant to Section 319 of the Consolidated Appropriations Act, 2014 (Public Law No. 113-76), and was charged to evaluate the laboratories'

“...alignment with the Department’s strategic priorities, duplication, ability to meet current and future energy and national security challenges, size, and support of other Federal agencies,...the efficiency and effectiveness of the laboratories, including assessing overhead costs and the impact of DOE’s oversight and management approach,...the effectiveness of the Department’s oversight approach and the extent to which LDRD funding supports recruiting and retention of qualified staff¹.”

The CRENEL report is based on extensive fact finding, including significant testimony from numerous stakeholders and visits to all of the labs in the DOE complex. The final report, issued on October 28, 2015, follows the Commission’s report of February 27, 2015, and contains a total of 36 recommendations across 6 primary themes: recognizing value,

¹ *Final Report of the Commission to Review the Effectiveness of the National Energy Laboratories*, Volume 1, October 28, 2015, p 1.

rebuilding trust, maintaining alignment and quality, maximizing impact, managing effectiveness and efficiency, and ensuring lasting change. For convenience, Appendix 1 of this letter provides a copy of the tabulated recommendations from the Commission's report, grouped by theme and identifying a proposed owner for each.²

Overall, our SEAB Task Force endorses the CRENEL report. We find the analysis and recommendations from the Commission to be consistent with the numerous prior investigations, commissions and studies that have reviewed the Laboratories over the years. The Commission's report is well aligned in areas that overlap with previous work and recommendations from our Task Force. We comment below on several specific items but, in general, we view the Commission's report as a thorough recitation of a well-told story that repeats and reinforces important recommendations to improve the efficiency of laboratory operations, planning and research outcomes, while endorsing the value, the direction and operations of the current laboratory system. As with the majority of recent reports, the Commission decries the current environment where oversight and regulation are increasingly imposed on the national laboratories and Congress and the Department have not followed-up or implemented recommendations to streamline the process and the management of the labs. Speaking to this issue, the Commission's final recommendation states,

A standing body should be established to track implementation of the recommendations and actions in this report, and to report regularly to DOE, the laboratories, the Administration, and the Congress on progress, results, and needed corrective actions. The standing body could assist Congressional committees in developing a rational plan for future evaluations of the DOE laboratories.³

Later in this letter, you will find SEAB's recommendation on how the "standing body" could be created and who should establish and maintain it.

² The Commission appendix would be even more useful if the Commission suggested which office in DOE should be the "responsible actor" for each recommendation. Experience shows that absent direct secretarial intervention, bureaucratic interests greatly delay the implementation of meritorious proposals for change.

³ *ibid*, p 63.

We first point out areas of emphasis in the Commission's report that reinforce points raised in your SEAB Task Force's report:

1. The Commission speaks to the need to reestablish the model in which the laboratories operate as FFRDCs and roles are appropriately established: "...the government is responsible for setting the *"what"* of strategic and program direction to meet the Nation's needs, while the contracted partners, along with the laboratories they manage and operate, are responsible for determining precisely *"how"* to meet the technical and scientific challenges and to carry out programs."⁴ In particular, the Commission highlights the need to clearly establish where responsibility rests amongst the many stakeholders involved in the lab management and delivery system (the laboratory director and the director's leadership team, DOE Headquarters sponsoring program offices, DOE Site (or in the case of the NNSA, Field) Offices, DOE Service Centers, DOE operational oversight offices, the M&O contractor). This finding is directly aligned with the primary focus in our Task Force's report (Recommendation 1.1) to use the Laboratory Policy Council to clarify the roles and responsibilities for mission execution at the laboratories and direct the Under Secretary for Management and Performance to lead the Laboratory Operations Board in implementing these changes.
2. The Commission's report recommends a number of actions that can be taken to provide immediate change to the overly burdensome detailed management of the laboratories that is inconsistent with the philosophy of a Government Owned, Contractor Operated (GOCO) laboratory. The Commission endorses the recommendation of the Augustine-Mies Panel to eliminate the incentive portion of the M&O contract award, replacing it with a competitive fixed fee arrangement. We support this recommendation as a way to reduce complex bureaucracy, which is delivering limited operational performance leverage.

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Finally, it is worth noting that the Commission specifically recommends separating the National Energy Technology Laboratory (NETL), currently the only Government Owned, Government Operated (GOGO) laboratory in the system, into two independent parts – a standard GOCO to handle the research and development mission and a contracting office to handle the disbursement of funds to external partners.

We find merit in all these CRENEL suggestions.

3. As noted in numerous reviews and reports over the last decade, the Commission observes that the laboratories can make a greater contribution to the national economy and its competitiveness, if the laboratories have effective technology transfer processes in place. The Commission clearly articulates the larger view of what technology transfer means, commenting that in addition to traditional Cooperative Research and Development Agreements, Work for Others, or licensing activities, significant technology transfer occurs through the world class user facilities, through the maturing of early career research talent and through personnel flow and rotation between the laboratories, academia and industry. SEAB strongly endorses this view. However, we believe that CRENEL has failed to comment on an important issue on this topic. As the Interim Report by the SEAB National Laboratory Task Force suggests, there is some level of confusion and inconsistency about whether economic development and national competitiveness are part of the mission of National Laboratories. To address this directly, the SEAB report has recommended (#3.1) that you issue a policy statement that

creating value for the private sector through the use of technology transfer, research facilities and workforce is part of the National Laboratory mission. We continue to advocate this.

4. The Commission provides a thorough analysis of the rationale and current uses of Laboratory Directed Research and Development (LDRD) and finds clear benefits from the program for supporting high-risk, potentially high reward early-stage research, for exploring research avenues that may be new to the laboratory or the complex, and as a significant tool that “.. enables laboratories to develop and invest in its workforce for both the short and long term.”⁵ As with numerous recent reviews, including your Task Force, the Commission “...strongly endorses LDRD programs, both now and into the future, and supports restoring the cap on LDRD to 6 percent, unburdened, or its equivalent.”⁶
5. The Commission notes positively your strongly articulated commitment and the steps being taken by the Department to ensure alignment of the laboratories in its strategic planning processes. The Office of Science (SC) process is described in detail:

During this Laboratory Strategic Planning process, SC requires laboratory leaders to define the long-range visions for their respective laboratories. This information provides a starting point for discussion about each laboratory’s future directions, immediate and long-range challenges, and resource needs. DOE and the laboratory leaders settle on new research directions and the expected development or sustainment of capabilities. In addition, external advisory committees provide advice on establishing research and facilities priorities; determining proper program balance among disciplines; and identifying opportunities for inter-laboratory collaboration, program integration, and industrial participation.⁷

The report further describes the effective processes SC uses to review its alignment to DOE strategy and connect both its strategic and tactical execution to its annual

⁵ *ibid*, p 66.

⁶ *ibid*, p 43. SEAB notes with some sadness that use of the word “equivalent” apparently conceals inability to agree on a simple and transparent method to calculate the 6% because some labs are jockeying for more complex formulae that result in greater LDRD.

⁷ *ibid*, p 35.

Performance and Evaluation and Measurement Plan (PEMP.) The Commission calls for the adaptation of these core, successful processes to all the DOE laboratories. As you know, the SEAB Task Force made a similar recommendation and proposed that the DOE Laboratory Operations Board be charged with the task of implementing a DOE-wide effort to identify, manage, and resolve issues affecting the management, operations, and administration of the National Laboratories.

One additional point that bears mentioning is the Commission's analysis and endorsement of recommendations made by both the NRC⁸ and, more recently SEAB⁹, to provide a modest investment stream for science and technology development for the Environmental Management program, stating that, "Success of the cleanup effort will require significant new understanding of the science and with this understanding, development of new technology."¹⁰

As noted above, CRENEL calls for the establishment of a "standing body" to track implementation of the recommendations made in its report. SEAB recommends that because most of the National Laboratories are managed by their respective offices of the Under Secretaries for Science & Energy and Nuclear Security, and many of the recommendations involve management and performance, the "standing body" should be formed by the three Under Secretaries – Science & Energy, Nuclear Security and Management & Performance – with the Under Secretary for Management & Performance serving as the Chair of this standing body. The purpose of this standing body would be to track and enforce timelines and priorities to make process changes and report directly to the Secretary.

⁸ National Research Council, Committee to Evaluate the Science, Engineering, and Health Basis of the DOE's Environmental Management Program, *Improving the Environment: An Evaluation of DOE's Environmental Management Program*, (Washington DC: NRC, 1995), 21.

⁹ SEAB, *Report of the Task Force on Technology Development for Environmental Management*, (Washington, DC: DOE, 2014);

¹⁰ *Final Report of the Commission to Review the Effectiveness of the National Energy Laboratories*, Volume 1, October 28, 2015, p 59.

We also note a few points where we feel that the CRENEL report could have been a bit more assertive in its recommendations.

1. The Congressional charge to the Commission implicitly calls for a judgment about whether the size of the DOE national laboratory network is too big, too small, or just right given the current and future technology needs of the country in DOE's mission areas of responsibility: science, energy, national security, and environmental management. The Commission does not directly address this central question but their implicit answer is that the DOE national labs are doing their job, their effectiveness and efficiency is impaired by over regulation, and the amount of public resources is "just right" although at several points there is a hint that more resources would be welcome. This central conclusion would be more convincing if the Commission had examined a range of different organizational arrangements, quite different from the current structure, and compared the pros and cons of each.
2. The CRENEL report also does not offer a timeline for its recommendations to be implemented. Because many of the recommendations are similar to the ones offered by the SEAB Task Force, we suggest that you use the timeline offered by the SEAB Task Force report.

In summary, we find that the CRENEL Commission report provides additional support for the numerous findings and recommendations that have already been voiced about the value and performance of the DOE national laboratories. The Commission also repeats and underscores the many recommendations that have been made to streamline the management and oversight of the laboratories, thus making them more efficient and of greater value to the scientific and technological strength of the country. It is up to you and your successors to see that the meritorious suggestions for change are put into place.

Appendix 1 Summary of the Commission's Recommendation¹¹

Section	Theme	Section	Theme
2	Recognizing Value	5	Maximizing Impact
3	Rebuilding Trust	6	Managing Effectiveness and Efficiency
4	Maintaining Alignment and Quality	7	Ensuring Lasting Change

Table 4. Responsible Actors for Each Recommendation and Cross-References to Volume 2

Volume 1 Chapter & Section Reference	Rec. No.	Recommended Action	Responsible Actor(s)	Volume 2 Chapter & Section Reference
2.C		The National Energy Commission should recognize the value of the National Laboratories and provide the necessary resources to maintain and enhance the research and development process of existing laboratories.	Administration and Congress	2.C
3.A.1	2	Department of Energy (DOE) and the laboratories must work together to restore the fiscal Federal Funded Research and Development Center (FFRDC) relationship as one of trust and accountability. DOE should delegate more authority and flexibility to the laboratories and hold them accountable. The laboratories must be more transparent with DOE about their activities.	DOE and Laboratories	2.C
3.A.1	3	DOE should assign laboratory should safety develop an annual operating plan, with appropriate the future and scope of the laboratory's activities, including goals and milestones. DOE should then provide increased flexibility and authority to the laboratory to implement that plan.	DOE and Laboratories	2.C
3.A.1	4	To improve DOE's ability to manage the laboratories, DOE should implement greater leadership and management development for its Federal workforce, including multi-directional rotational assignments.	DOE	2.C
3.A.1	5	DOE should separate the National Energy Technology Laboratory's (NETL) research and development (R&D) function from its program management. Consideration should be given to converting the new research NETL into an FFRDC. NETL should announce its interactions with universities.	DOE and Congress	2.C
3.A.2	6	DOE should abandon incentive award fees in favor of a fixed fee set at competitive rates with risk and necessary investment in mind. DOE should also adopt richer set of incentives to motivate sound management.	DOE	2.C

¹¹ Reproduced directly from Table 4 of the *Final Report of the Commission to Review the Effectiveness of the National Energy Laboratories*, Volume 1, October 28, 2015.

Volume 1 Chapter & Section Reference	Rec. No.	Recommended Action	Responsible Actor(s)	Section Reference	Volume 2 Chapter & Section Reference
3.B.1	7	DOE should give the laboratories the authority to operate with more discretion whenever feasible. For nuclear non-high-level, unclassified facilities, DOE should allow the facilities to use existing State and Federal regulations in place of DOE requirements. DOE should review the internal approval processes DOE should modify its processes for developing directives, orders and other requirements to get more input on the benefits and impacts of the proposed requirements. When developing new requirements, DOE should use a risk-based model, ensuring the level of control over an activity is commensurate with the potential risk.	DOE	3.B	3.B
3.B.1	8	DOE should facilitate the use of Cooperative Assistance System (CAS) within national security laboratories. DOE should ensure that any information from the CAS system, with appropriate variation, is made as much as possible for their local oversight. The quality of CAS can be increased through peer review for implementation and effectiveness.	DOE	3.B	3.G
3.B.2	9	DOE should establish a single point of contact within the Department for all laboratory-related requests. DOE should increase the size of funding increments by consolidating budget and reporting (BAR) codes, extending funding to support long-term funding commitment and institutionalizing mechanisms to move money between BAR codes for related research areas.	DOE	3.B.2	4.D
3.B.3	10	DOE should increase the size of funding increments by consolidating budget and reporting (BAR) codes, extending funding to support long-term funding commitment and institutionalizing mechanisms to move money between BAR codes for related research areas.	DOE	3.B.3	4.D
3.B.3	11	DOE should establish a single point of contact within the Department for all laboratory-related requests. DOE should increase the size of funding increments by consolidating budget and reporting (BAR) codes, extending funding to support long-term funding commitment and institutionalizing mechanisms to move money between BAR codes for related research areas.	DOE	3.B.3	4.D
3.B.3	12	DOE should establish a single point of contact within the Department for all laboratory-related requests. DOE should increase the size of funding increments by consolidating budget and reporting (BAR) codes, extending funding to support long-term funding commitment and institutionalizing mechanisms to move money between BAR codes for related research areas.	DOE	3.B.3	4.D
3.B.3	13	DOE should establish a single point of contact within the Department for all laboratory-related requests. DOE should increase the size of funding increments by consolidating budget and reporting (BAR) codes, extending funding to support long-term funding commitment and institutionalizing mechanisms to move money between BAR codes for related research areas.	DOE	3.B.3	4.D
3.B.3	14	DOE should establish a single point of contact within the Department for all laboratory-related requests. DOE should increase the size of funding increments by consolidating budget and reporting (BAR) codes, extending funding to support long-term funding commitment and institutionalizing mechanisms to move money between BAR codes for related research areas.	DOE	3.B.3	4.D
3.B.3	15	DOE should establish a single point of contact within the Department for all laboratory-related requests. DOE should increase the size of funding increments by consolidating budget and reporting (BAR) codes, extending funding to support long-term funding commitment and institutionalizing mechanisms to move money between BAR codes for related research areas.	DOE	3.B.3	4.D
3.B.3	16	DOE should establish a single point of contact within the Department for all laboratory-related requests. DOE should increase the size of funding increments by consolidating budget and reporting (BAR) codes, extending funding to support long-term funding commitment and institutionalizing mechanisms to move money between BAR codes for related research areas.	DOE	3.B.3	4.D
3.B.3	17	DOE should establish a single point of contact within the Department for all laboratory-related requests. DOE should increase the size of funding increments by consolidating budget and reporting (BAR) codes, extending funding to support long-term funding commitment and institutionalizing mechanisms to move money between BAR codes for related research areas.	DOE	3.B.3	4.D
3.B.3	18	DOE should establish a single point of contact within the Department for all laboratory-related requests. DOE should increase the size of funding increments by consolidating budget and reporting (BAR) codes, extending funding to support long-term funding commitment and institutionalizing mechanisms to move money between BAR codes for related research areas.	DOE	3.B.3	4.D
3.B.3	19	DOE should establish a single point of contact within the Department for all laboratory-related requests. DOE should increase the size of funding increments by consolidating budget and reporting (BAR) codes, extending funding to support long-term funding commitment and institutionalizing mechanisms to move money between BAR codes for related research areas.	DOE	3.B.3	4.D
3.B.3	20	DOE should establish a single point of contact within the Department for all laboratory-related requests. DOE should increase the size of funding increments by consolidating budget and reporting (BAR) codes, extending funding to support long-term funding commitment and institutionalizing mechanisms to move money between BAR codes for related research areas.	DOE	3.B.3	4.D

Volume 1 Chapter & Section Reference	Rec. No.	Recommended Action	Responsible Actor(s)	Volume 2 Chapter & Section Reference
4.B	24	DOE should continue to ensure that the laboratories currently housed within the NNSA laboratories are operational. Congress should ensure that the laboratories currently housed within the NNSA laboratories are operational. Congress should ensure that the laboratories currently housed within the NNSA laboratories are operational.	Congress	7.E
5.A	22	DOE should establish techniques to make the Strategic Partnership Projects process more efficient.	DOE	9.E
5.A	23	DOE should support efforts to strengthen the Mission Executive Council.	DOE	9.E
5.B	24	DOE and its laboratories should continue to facilitate and encourage engagement with universities through collaborative research and vehicles such as joint faculty appointments and joint review.	DOE and Laboratories	10.C
5.C	25	DOE and its laboratories should fully embrace the technology transition mission and continue improving the speed and effectiveness of operations with the private sector. Innovative transfer and commercialization mechanisms should be pursued and best practices in other sectors should be examined.	DOE and Laboratories	11.E
5.C	26	DOE should determine whether the annual operating plans proposed by the Commission could qualify as the Plan of the National Laboratory. DOE should determine whether the annual operating plans proposed by the Commission could qualify as the Plan of the National Laboratory. DOE should determine whether the annual operating plans proposed by the Commission could qualify as the Plan of the National Laboratory.	DOE and Congress	11.E
5.C	27	DOE should continue to provide support to the laboratories to ensure that they are able to conduct research and development. DOE should continue to provide support to the laboratories to ensure that they are able to conduct research and development. DOE should continue to provide support to the laboratories to ensure that they are able to conduct research and development.	DOE	11.E
5.D	28	DOE and Congress should continue to support user facilities at the DOE laboratories. External advisory groups should continue to be used to decide which facilities to build and how to upgrade existing facilities.	DOE, Administration, and Congress	12.C
5.E	29	DOE should continue to provide support to the laboratories to ensure that they are able to conduct research and development. DOE should continue to provide support to the laboratories to ensure that they are able to conduct research and development. DOE should continue to provide support to the laboratories to ensure that they are able to conduct research and development.	DOE	13.E
5.E	30	DOE should provide greater transparency into laboratory indirect costs and publish an annual report of the overhead rates at each individual National Laboratory.	DOE	13.E
5.E	31	DOE should consider whether a capital budget will better serve its internal facilities and infrastructure, budgeting and management needs.	DOE	14.B
5.E	32	DOE and the laboratories should continue efforts to improve facilities and infrastructure by halting the growth in deferred maintenance and speeding up the deactivation and decommissioning of excess facilities. DOE should work with Congress and OMB to agree upon the size and nature of the resources shortfall for facilities and infrastructure, and to develop a long-term plan to resolve it through a combination of increased funding, policy changes, and innovative financing.	DOE, Laboratories, Congress, and OMB	14.D
5.E	33	DOE should continue to provide support to the laboratories to ensure that they are able to conduct research and development. DOE should continue to provide support to the laboratories to ensure that they are able to conduct research and development. DOE should continue to provide support to the laboratories to ensure that they are able to conduct research and development.	DOE	14.D
5.E	34	DOE should maintain focus on increasing institutional capability and imposing greater discipline in implementing DOE project guidance, which is currently being incorporated into its DOE directive 413.3 B. There should be more peer review and "red team" with DOE.	DOE	15.G
5.E	35	The Commission should develop a report to Congress on the progress of the DOE laboratories. The Commission should develop a report to Congress on the progress of the DOE laboratories. The Commission should develop a report to Congress on the progress of the DOE laboratories.	DOE, Administration, and Congress	16.D
7.C	36	A standing body should be established to track implementation of the recommendations and actions in this report, and to report regularly to DOE, the laboratories, the Administration, and the Congress. This body could assist Congress in developing a rational plan for future evaluations of the DOE laboratories.	DOE, Administration, and Congress	16.D

**Congressional Advisory Panel on the Governance of
the Nuclear Security Enterprise**

Interim Report

The Honorable Norman R. Augustine, Co-Chairman

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April 2014

Preface

Section 3166 of the Fiscal Year 2013 National Defense Authorization Act establishes the Congressional Advisory Panel on the Governance of the Nuclear Security Enterprise and tasks the panel to offer recommendations "...with respect to the most appropriate governance structure, mission, and management of the nuclear security enterprise." This interim report, required by Congress, summarizes the panel's initial findings on the current health of the enterprise and examines the root causes of its governance challenges. The panel is continuing to clarify and document the issues identified here. Recommendations to address the problems are being developed. The panel's findings and recommendations will be reported in depth in its final report, which is due to Congress in July, 2014.

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Executive Summary

This interim report presents the findings to date of the Congressional Advisory Panel on the Governance of the Nuclear Security Enterprise. Congress tasked the panel to examine the performance of this enterprise and to consider alternative governance models. The current viability of the U.S. nuclear deterrent is not in question. The panel finds, however, that the existing governance structures and practices are most certainly inefficient, and in some instances ineffective, putting the entire enterprise at risk over the long term.

This is no time for complacency about the nuclear deterrent. Each successive administration since that of President Eisenhower has reaffirmed the need to sustain a credible nuclear deterrent that is safe, secure and reliable. The panel endorses this commitment: America's deterrent forces remain of utmost importance, they provide the ultimate guarantee against major war and coercion, and our allies depend on these forces and capabilities for extended deterrence. Other countries carefully measure U.S. resolve and technological might in making their own decisions. The United States and its allies are in a complex nuclear age, with several nuclear powers modernizing their arsenals, new nuclear technologies emerging, and potential new actors—as well as regional challenges—raising significant concerns. Now would be a dangerous time to stumble.

This interim report summarizes the panel's findings on the current health of the enterprise and the root causes of its challenges. The panel is only now beginning to formulate the recommendations that will be provided in the final report. During the past six months, the panel has examined the entire enterprise, defined broadly to include the national leadership in Congress and the Executive branch, the components of the National Nuclear Security Administration (NNSA) and policy and oversight organizations within the Department of Energy (DOE), and NNSA's customers in the Department of Defense, Department of State, the Intelligence Community, and the Department of Homeland Security. Additionally, the panel benchmarked NNSA's management practices against proven management approaches used by other high-performing, high-technology organizations both in the private sector and in government. The panel has reviewed previous studies; conducted on-site visits to numerous installations; and benefitted from the views of dozens of expert witnesses.

One unmistakable conclusion of the panel's fact finding is that, as implemented, the "NNSA experiment" in governance has failed. The current DOE/NNSA structure of "semi-autonomy" within DOE has not established the effective operational system that Congress intended. This needs to be fixed as a matter of priority. These fixes will not be simple or quick, and they must address the systemic nature of the problem.

Despite the flaws in governance, the panel found noteworthy examples of success in NNSA's endeavors. To date, Science-Based Stockpile Stewardship has succeeded in sustaining confidence in the U.S. nuclear deterrent. Unmatched technical innovation on the part of NNSA's scientists and engineers has produced a dramatically increased understanding of the country's aging nuclear weapon stockpile. The labs and plants are providing solid support to non-proliferation efforts and unique expertise to the Intelligence Community. NNSA's Naval Reactors organization continues to provide world class performance in the development and support of the most advanced naval nuclear propulsion systems in the world.

But, NNSA as a whole continues to struggle to meet fundamental commitments. It has lost credibility and the trust of the national leadership and customers in DOD that it can deliver needed weapons and critical nuclear facilities on schedule and on budget. Simply stated, there is no plan for success with available resources. NNSA is on a trajectory towards crisis unless strong leadership arrests the current course and reorients its governance to better focus on mission priorities and deliverables.

At the root of the challenges are complacency and the loss of focus on the nuclear mission across the nation and within U.S. leadership following the end of the Cold War. Over the decades, this changed situation has translated into the absence of a widely accepted understanding of, and appreciation for, the role of nuclear weapons and nuclear technology in the 21st century. Within the nuclear enterprise this has been reflected in a lack of urgency and need for a compelling mission focus. Although the national leadership has provided strong policy statements and substantial sums of money to the enterprise, follow-through has been insufficient. Congress' current focus on the issue is a welcome development. But sustained national commitment and focus on the entirety of the mission and the enterprise charged with its execution is required.

Fundamental governance reform is needed to shape an enterprise that meets all of the nation's needs and establishes the essential infrastructure that is required for the coming decades. What is needed is a governance system that will:

- Issue clear plans and provide sufficient resources for success
- Assign and align responsibility, along with the necessary authority, and
- Provide strong, accountable leadership and management at all levels.

To achieve these conditions for success, five systemic disorders will need to be addressed.

Loss of Sustained National Leadership Focus

Since the early 1990s, the United States has experienced significant erosion in its abilities to sustain its nuclear deterrent capabilities for the long term. The atrophy of these capabilities has been well documented in numerous reports over the past decade. The fundamental underlying cause of this erosion has been a lack of attention to nuclear weapon issues by senior leadership—

both civilian and military—across both past and present Administrations and Congresses. This lack of attention has resulted in public confusion, Congressional distrust, and a serious erosion of advocacy, expertise, and proficiency in the sustainment of these capabilities. Absent strong national leadership, NNSA, as well as the whole Nuclear Security Enterprise, has been allowed to “muddle through.” First and foremost, as mentioned previously, national-level support must be consolidated and focused.

A Flawed DOE/NNSA Governance Model

The current NNSA governance model of semi-autonomy within DOE is fundamentally flawed. NNSA has not established effective leadership, policy, culture, or decision making. As implemented, the Administrator of NNSA is not provided the autonomy from DOE headquarters staffs necessary to accomplish the mission, nor has this governance model created a sense of accountability for mission accomplishment within the involved DOE headquarters staffs. Indeed, contrary to Congress’s intent, the design and implementation of NNSA governance has led to numerous redundancies, confused authorities, poor integration across the enterprise, and weakened accountability.

Absence of Sound Management Principles

NNSA, and the associated policy-setting and oversight organizations within DOE, reflect few of the characteristics of the successful organizations benchmarked for this study. An entrenched, risk-averse bureaucracy lacks a shared vision for, and a unified commitment to, mission accomplishment. Hence, teamwork is lacking. Both DOE and NNSA lack clearly defined and disciplined roles, responsibilities, authorities, and accountability aligned to NNSA’s mission deliverables. Too many people can stop mission essential work for a host of reasons and those who are responsible for getting the work done often find their decisions ignored or overturned. Chains of command are not well defined and resources are micromanaged. Personnel management and career development programs, issue resolution processes, and deliverable-aligned budgets are deficient. Shortfalls in project management and cost estimating are well-documented and acute.

Dysfunctional Relationships between Government and Management and Operating (M&O) Partners

The trusted partnership that historically existed between the field and DOE/NNSA headquarters has eroded over the past two decades to an arm’s length, customer-to-contractor, adversarial relationship. The changes in mission priorities from design and production to stewardship, and heightened regulatory oversight, overturned accepted priorities within the nuclear weapons program and radically altered the well-understood relationships between line managers and mission-support functions within the government as well as between the government and the M&O contractors. In the case of the laboratories, this has led to a significant

loss in the benefits of the federally funded research and development centers—the FFRDC model. The trust essential to this model—and underscored by a recent National Resource Council of the National Academies study¹—has been eroded by unclear accountability for risk, and a fee structure and contract approach that invites detailed, tactical oversight rather than a more strategic approach with performance-based standards. Additionally, excessive, fragmented budget and reporting lines also confound effective and efficient programmatic management and further erode any sense of trust. Furthermore there is no enterprise-wide approach within NNSA. While there are examples where the relationship has improved, such as at the Kansas City Plant, government-M&O relationships remain highly inefficient and, in some cases, severely fractured.

Insufficient Collaboration with Customers

The collaboration issues identified by the panel are mainly with the Department of Defense weapons customers. This is, at once, a cultural and communications divide. There is no affordable, executable joint DOD-DOE vision, plan, or program for the future of nuclear weapons capabilities. There is a lack of effective joint planning and budget coordination because of a fundamental lack of mechanisms to ensure requisite collaboration and consensus to address core mission requirements. As a consequence, DOD customers lack trust in NNSA's ability to modernize facilities and execute warhead life extension programs. Although other customers appear to be satisfied, here, too, a more strategic approach would strengthen capabilities and the services provided.

In conclusion, lasting reform will require aggressive action and sustained implementation in all five of these areas. The changes needed undoubtedly will be difficult to implement regardless of where the enterprise is located within the government's structure, since the fundamental problems are cultural more than organizational. Organizational change, while not unimportant, is only a small portion—the easy portion—of the revisions that must be made to facilitate success. Previous efforts to reform and previous studies calling for action have largely failed due to lack of leadership follow-through, a lack of accountability for enacting change, and the lack of effective, sustained top-level demand for change from national leadership. The Department of Energy by itself would be challenged to oversee the radical steps that will be needed. Success is imaginable only with the strong and active engagement of a knowledgeable Secretary, supported by the White House and Congress, and a structure that removes impediments and that aligns to mission priorities.

¹ National Research Council, *Quality of Science and Engineering at the NNSA National Security Laboratories* (Washington, DC: National Academies Press, 2013).

Introduction

Section 3166 of the Fiscal Year 2013 National Defense Authorization Act establishes the Congressional Advisory Panel on the Governance of the Nuclear Security Enterprise, and tasks the panel to offer recommendations "...with respect to the most appropriate governance structure, mission, and management of the nuclear security enterprise." Over the past six months, the panel has performed fact finding in support of its task. The central focus has been on the National Nuclear Security Administration (NNSA), both headquarters and field, including the laboratories, production plants, and the Nevada National Security Site. The panel has also examined the other major elements of the overall national nuclear enterprise, to include the leadership in the Congress and the Executive Branch as well as NNSA's major customers in other Federal agencies. This report summarizes the panel's interim findings on the current health of the enterprise and examines the root causes of its governance challenges.

The NNSA was established in 1999. The Act creating the NNSA established the missions comprising six major elements as follows:²

- To enhance United States national security through the military application of nuclear energy
- To maintain and enhance the safety, reliability, and performance of the United States nuclear weapons stockpile, including the ability to design, produce, and test, in order to meet national security requirements
- To provide the United States Navy with safe, militarily effective nuclear propulsion plants and to ensure the safe and reliable operation of those plants
- To promote international nuclear safety and nonproliferation
- To reduce global danger from weapons of mass destruction
- To support United States leadership in science and technology

These statutory missions draw on a core set of science, engineering, and manufacturing capabilities that have been developed largely to address the needs of the nuclear weapon programs. The panel's evaluation has considered each mission, with the understanding that the NNSA is solely qualified to fulfill its mission to sustain the nuclear stockpile and provide naval nuclear power, while it is one of several contributors in the other mission areas.

² NNSA Act (Title XXXII of the National Defense Authorization Act for Fiscal Year 2000, Public Law 106-65).

Recognizing that there has already been extensive examination of the enterprise, the panel reviewed thousands of pages produced by studies and reviews conducted both before and since the creation of the NNSA. The members heard from many experts, both inside and outside of the enterprise.³ This included past and present senior leadership in the Department of Energy (DOE), NNSA, and Department of Defense (DOD), Field Office managers, Management and Operating (M&O) executives and a cross-section of personnel at each site, Laboratory Directors, chairmen of previous studies of the enterprise, Congressional staff, representatives from the customer communities (DOD, Intelligence Community, the Federal Bureau of Investigation, Department of State, Department of Homeland Security), the Defense Nuclear Facilities Safety Board (DNFSB), the Government Accountability Office, and the British nuclear weapons program.

The panel divided its field investigative work into four fact-finding groups as follows:

- The *National Leadership* group focused on the perspectives of the Executive branch (National Security Council Staff, Office of Management and Budget (OMB), and Office of Science and Technology Policy); the Legislative branch (both the Senate and the House of Representatives, and both the appropriations and authorization committees); Department of Energy headquarters; and the Nuclear Regulatory Commission, the DNFSB and other national-level stakeholders such as the Occupational Safety and Health Administration (OSHA) and the American Federation of Labor and Congress of Industrial Organizations (AFL-CIO).
- The *NNSA* group interviewed leadership personnel within NNSA headquarters and also conducted site visits to the three laboratories (Los Alamos National Laboratory (LANL), Lawrence Livermore National Laboratory (LLNL), and Sandia National Laboratory (SNL)), the four production plants (Kansas City Plant, Pantex, Savannah River Site, and Y-12 National Security Complex), and the Nevada National Security Site (NNSS). These visits incorporated discussions with the Field Offices (including the Albuquerque Complex) and the M&O contractor leadership as well as tours of some of each site's important facilities.
- The *Customer* group obtained perspectives of the clients of the enterprise to include DOD, the Intelligence Community, Department of State, Department of Homeland Security, the Federal Bureau of Investigation, and the British nuclear weapons program.
- The *Benchmarking* group examined successful high-risk, high technology organizations to identify potential processes and structures that might be adopted by the enterprise. Among these organizations were Naval Reactors, Navy Strategic Systems Programs, National Aeronautics and Space Administration (NASA), representatives from the civil

³ A full list of those who provided not-for-attribution testimony to the panel may be found in Appendix A.

nuclear power industry, DOE's Office of Science, the Centers for Disease Control, the Federal Aviation Administration, and the British nuclear weapons program.

The panel's findings and recommendations will be reported in depth in its final report, which is due to Congress in July, 2014. This interim assessment provides ample evidence of troubled enterprise governance. The telling symptoms of distress reported to the panel were confirmed through many sources and are consistent with the findings of numerous earlier studies. Notable among these

- Lack of agreed mission priorities for the enterprise as a whole
- Goals that are not matched to NNSA's budgets
- A loss of credibility and the trust of the national leadership and customers that NNSA can deliver needed weapons and critical nuclear facilities on schedule and on budget
- Inability of the NNSA to accurately estimate costs and schedules as the basis for planning
- Highly detailed, inefficient budgeting and reporting requirements imposed upon the NNSA by Congress and further complicated by the NNSA
- Lack of operational experience, stability, and continuity of NNSA leadership
- Absence of structured decision making and agreed-upon authority within the DOE and NNSA to resolve issues promptly
- Failure of NNSA to appropriately delegate responsibility and authority, monitor results, and enforce accountability at virtually all organizational levels
- A risk averse culture within NNSA headquarters and field offices that fosters mistrust and encourages onerous transactional oversight of M&O performance
- Excessive and often vague DOE rules, regulations, and procedures
- Weak risk management processes and execution within DOE headquarters, the NNSA headquarters, and the NNSA's national laboratories
- Multiple, redundant DOE and NNSA mission-support activities (overseeing such functions as environment, safety, and health), with relatively autonomous authorities
- Mismatch of skill needs and staff capabilities, especially for program management and cost estimation
- Inadequate investments for infrastructure maintenance at the NNSA laboratories and production facilities
- Ineffectual NNSA communications, externally, with customers, and internally, from leadership to staff and from staff to leadership

- Erosion of the NNSA-laboratory partnership, undermining the contributions of the labs as Federally Funded Research and Development Centers

Despite the governance shortcomings that are the focus of this report, it is important to recognize the achievements of the individuals and organizations working within the enterprise. Selected significant accomplishments in Science-Based Stockpile Stewardship, naval nuclear propulsion, non-proliferation, and intelligence are highlighted in Table 1. Many customers are satisfied with their working relationships with the laboratories and plants, as well as with the products and services they obtain from the enterprise. Unfortunately, these accomplishments are often overshadowed by the NNSA's management shortcomings, including failures to serve key weapons customers, prudently manage resources, maintain agreed-upon schedules, and effectively communicate with its customers and national leadership.

Table 1. Noteworthy Accomplishments of the Nuclear Security Enterprise

- Nuclear Stockpile Maintenance program has delivered W87 and W76 Life Extension Program (LEP) warheads
- Science-Based Stockpile Stewardship
 - Vigorous processes for two decades of successful annual certification of the stockpiles
 - Tri-lab competition and collaboration (W76 dual-revalidation, Reliable Replacement Warhead competition)
 - World-leading scientific advances: significantly improved understanding of weapons' physics, aging, and material properties
 - Leadership in high-performance computing
 - Successful completion of new manufacturing and experimental facilities
- Naval Reactors programs successfully sustain and advance technologies for ship propulsion
- Continued plaudits for support to Interagency programs in areas such as non-proliferation, counter-proliferation, and counter nuclear terrorism (e.g., Intelligence Community, Department of Homeland Security, State Department)

The panel is seeking to identify lasting solutions for the failings of the enterprise governance system. It is the panel's judgment, reinforced by a comparison of the NNSA with

high-performing benchmark organizations, that this will require addressing five systemic disorders touching every organization within the national nuclear enterprise:

- First, a loss of sustained national leadership focus starting with the end of the Cold War, which has undermined the foundation for nuclear enterprise governance and contributes to virtually all of the observed problems;
- Second, a flawed DOE/NNSA governance model, resulting from the flawed implementation of legislation establishing NNSA as a “separately organized” sub-element of DOE;
- Third, an absence of sound management principles within DOE/NNSA;
- Fourth, dysfunctional relationships between the government and its M&O partners;
- Fifth, insufficient collaboration with customers.

Solutions must address each of these disorders. Difficult steps will be necessary, and senior management will need strong external support to bring about the needed change.

1. Loss of Sustained National Leadership Focus

Every aspect of the enterprise supporting the nuclear deterrent is colored by the fact that, since the end of the Cold War, nuclear weapons have become *orphaned* by senior officials in both the Executive and Legislative branches. The overall environment in which the enterprise operates across the U.S. government, in terms of interest, understanding, and advocacy, can be characterized as disparate, thin, and thinning.⁴ Across the government, there remains a relatively small community of experts focused on nuclear deterrence matters, and they tend to be isolated in organizations with broad portfolios. To be sure, top-level guidance has been clearly articulated (e.g., the 2010 *Nuclear Posture Review*,⁵ subsequent work leading to the Nuclear Weapons Employment Policy in June 2013,⁶ Presidential speeches, the 2014 *Quadrennial Defense Review*,⁷ and the annual *Nuclear Weapons Stockpile Memorandum*). Most recently, the President's FY15 Budget submission and the 2014 *Quadrennial Defense Review* emphasize the fundamental importance of nuclear deterrence and the commitment to invest in order to "retain an effective Triad."⁸ In support of these policies, billions of dollars are provided every year. Nevertheless, the day-to-day operation of the enterprise suffers from a lack of follow-through in shaping plans and resources, and in overseeing mission execution, both from the Legislative and Executive branches.

Within Congress, there are multiple challenges. A dwindling number of Members of Congress advocate for the needs of the enterprise or fully appreciate the enterprise's mission and its importance. In both the Senate and the House of Representatives, the panel found varied and disparate perspectives, and uneven communication among committee Members and their staffs. Communication challenges are further compounded by multiple committee jurisdictions over various parts of the enterprise. Nevertheless, some committed legislators and staffs continue to bring focus to these issues, as evidenced by the charter for this review.

⁴ Earlier studies, spanning more than a decade, have underscored this problem, including: Chiles Commission, *Report of the Commission on Maintaining United States Nuclear Weapons Expertise* (Washington, DC: DOE, 1999); Defense Science Board (DSB), *Report of the Defense Science Board Task Force on Nuclear Capabilities* (Washington, DC: Office of the Undersecretary of Defense for Acquisition Technology and Logistics, 2006); DSB, *Report of the Defense Science Board Task Force on Nuclear Deterrence Skills* (Washington, DC: Office of the Undersecretary of Defense for Acquisition Technology and Logistics, 2008).

⁵ DOD, *Nuclear Posture Review Report* (Washington, DC: DOD, April 6, 2010).

⁶ An overview of this policy is provided in Office of the Press Secretary, The White House, "Fact Sheet: Nuclear Weapons Employment Strategy of the United States," June 19, 2013, <http://www.whitehouse.gov-the-press-office/2013/06/19>, accessed April 30, 2014.

⁷ DOD, *2014 Quadrennial Defense Review* (Washington, DC: DOD, March 4, 2014).

⁸ *Ibid.*, 32.

Some Congressional policies and practices hamper effective and efficient execution of the mission. First, Congress has increased the number of budget control points imposed on the enterprise. In 1998, there were nine control points; today, in contrast, there are eighty-two imposed on NNSA. This has restricted the ability of the enterprise to manage efficiently and adjust resources as needed to meet mission priorities. A second budget issue is one that applies to the entire U.S. Government: the impact of Continuing Resolutions and the Budget Control Act. As funding is issued incrementally (and often late in the year of execution), the ability to manage the array of interrelated activities and adhere to multi-year schedules is compromised, which ultimately results in both increased cost and delivery delays. In addition, the inability of Congress to confirm nominees to important leadership positions in a timely manner leaves key roles vacant, hinders others already working within the organization to effect necessary changes pending the arrival of new leadership, and ultimately risks reducing the number of well-qualified leaders who are willing to subject themselves to this process.

Leadership challenges within the Executive Branch are evident as well. DOE has a broad span of civilian responsibilities in addition to the nuclear security programs, and few principals in DOE headquarters, outside of NNSA, focus on nuclear weapon issues. As for DOD, several key senior staffs and analytical activities focused on deterrence strategy, operations, and programs have been eliminated or significantly reduced over the past two decades.⁹ Executive Branch oversight is constrained by the limited staffs in both the National Security Council and the Office of Management and Budget. Studies and after action reviews of lapses in nuclear operations typically find that oversight mechanisms, leadership decisions, and workforce attitudes are shaped over time by the weakened top management focus on nuclear weapons. The most recent incident within DOE is the Y-12 security incursion. DOD examples during the past seven years include the unauthorized, inadvertent transfer of nuclear-armed Advanced Cruise Missiles from Minot Air Force Base (AFB) to Barksdale AFB, the mistaken shipment of Intercontinental Ballistic Missile (ICBM) warhead non-nuclear components to Taiwan, and recently-reported problems with personnel supporting U.S. ICBM operations.

In short, the governance of the enterprise has suffered from a lack of strong, focused political leadership at the department and national level. This is manifest in at least three ways.

A. Lack of a Unifying Narrative Clarifying Mission Priorities

Good governance begins with a clear understanding of mission priorities. Existing policy guidance supports each of NNSA's missions, but the guidance does not resolve and delineate program and resource priorities among those missions. Consequently, the panel has found there

⁹ DSB, *Report of the Defense Science Board Task Force on Nuclear Deterrence Skills*.

is no agreement across the government.¹⁰ For many, the core mission is nuclear weapons stewardship. Others place non-proliferation programs as the top priority. Another view is that leadership in nuclear security science and engineering, not the nuclear force itself, is the core capability that underwrites deterrence. These views compete in setting programmatic and resource priorities; few interlocutors chose to name one mission as *core*, and each is able to cite higher-order guidance in support of the priorities they perceive. National leadership has the essential role in establishing the needed strategy, guidance, and resources.

B. Lack of an Executable Plan

Good governance also requires an implementable plan. Lacking strong leadership that unifies priorities, there has been no mechanism for the NNSA, its customers, and the national leadership to converge on a credible resource-loaded plan to chart the path ahead. The President's annual Nuclear Weapons Stockpile Memorandum and the Nuclear Weapons Council evolving "baseline" plan, for instance, provide important direction, but they do not provide programmatic guidance. As discussed in Section 5 on NNSA's collaboration with its customers, the Nuclear Weapons Council and the Mission Executive Council for interagency customer coordination continue to struggle in setting priorities, defining the enterprise's needs, and identifying resources to support those needs. And, of course, planning efforts have been seriously undermined by the turbulent national budget environment as well as by NNSA's inability to accurately estimate costs.

A rough estimate, based on assessments by DOD's Cost Assessment and Program Evaluation Office and the Congressional Budget Office, is that the aggregate NNSA program, as was structured in its 2014 Stockpile Stewardship and Management Plan, was at least \$10 billion under-funded over the coming decade.¹¹ The recently released 2015 Stockpile Stewardship and Management Plan reduces projected funding over the next decade and proposes significant delays in the delivery of several major life extension programs and nuclear facilities.¹² Without commitment to an executable plan, NNSA has reacted and adjusted to funding as it is doled out year-to-year, or month-to-month. Large construction projects, Life Extension Programs (LEP),

¹⁰ The most wide-ranging and comprehensive recent document on the lack of consensus can be found in Stephanie Spies and John K. Warden, *Forging a Consensus for a Sustainable U.S. Nuclear Posture* (Washington, DC: Center for Strategic and International Studies, April 2013). See, in particular, pages 10 and 11 on the need for a unifying, lasting consensus amongst our national leadership. See also Strategic Posture Commission, *America's Strategic Posture: The Final Report of the Congressional Commission on the Strategic Posture of the United States* (Washington, DC: United States Institute of Peace, 2009).

¹¹ OSD Office of Cost Assessment and Program Evaluation, "NNSA Governance Discussions: Briefing to the Advisory Panel" (Washington, DC: DOD, December, 2013); Congressional Budget Office (CBO), *Projected Cost of U.S. Nuclear Forces, 2014 to 2023* (Washington, DC: CBO, December 2013).

¹² U.S. Department of Energy (DOE), *FY2015 Stockpile Stewardship and Management Plan* (Washington, DC: DOE, April 2014).

and infrastructure modernization investments are managed with incremental funding. This creates significant inefficiency. In each area the enterprise routinely incurs program slips, delivery delays, program suspensions, and accumulations of deferred maintenance—all leading to increased long-term costs.

C. Absence of Follow-Through for Governance Reform

Governance has also been affected by another symptom reflecting unfocused leadership: the weakened ability of NNSA leaders to address controversial governance problems, including personnel reforms, Federal workforce initiatives, shifts in budget priorities, re-sizing or re-shaping of the complex's infrastructure, and the enforcement of accountability. Because the NNSA has lacked consistent, high-level political support, it has muddled through, adopting a reactive style and failing to make tough management choices, even though many NNSA leaders have seen the need to address the governance problems this report and others outline.¹³ The difficult work in addressing the fundamental problems will fall on the shoulders of the NNSA leadership and the operating units of the enterprise. But, their efforts cannot succeed without the strong national level support for tough and sometimes politically difficult actions. To achieve this, it will be necessary to consolidate and focus available support to establish the nuclear weapons mission as a national priority in Congress and in the Executive Branch.

¹³ See, for example, DSB, *Report of the Defense Science Board Task Force on Nuclear Deterrence Skills*; and Spies and Warden, *Forging a Consensus for a Sustainable US Nuclear Posture*.

2. A Flawed Department of Energy/National Nuclear Security Administration (DOE/NNSA) Governance Model

Despite the intent of the NNSA Act to create a *separately organized* NNSA within DOE, the NNSA has not established autonomous leadership authorities, a policy framework, distinct culture, or integrated decision-making mechanisms.¹⁴ The panel concludes that the relationships among NNSA, the Secretary of Energy, and the DOE headquarters staffs are fundamentally broken and must change.

Except for Naval Reactors, the NNSA Act does not provide a blanket exemption of NNSA from DOE orders and directives.¹⁵ NNSA decisions and initiatives remain subject to DOE headquarters staffing processes prior to consideration for Secretarial approval. For instance, the department's directive program (DOE O 251.1C) requires policies, orders, notices, guides, and technical standards to be reviewed by a Directives Review Board chaired by the Director of the Office of Management.¹⁶ Senior representatives from the three Under Secretarial offices, the Office of General Counsel, and the Office of Health, Safety and Security all serve as members whose concurrence is needed before final issuance. Should the review board be unable to reach consensus, the Deputy Secretary decides whether to overturn the position of the directive's originating office.

DOE's implementation of the NNSA Act has produced parallel, intertwined NNSA and DOE headquarters staffs in many functional areas, rather than truly separate or independent DOE

¹⁴ "...NNSA and DOE have not fully agreed on how NNSA should function within the department as a separately organized agency. This lack of agreement has resulted in organizational conflicts that have inhibited effective operations." Government Accountability Office (GAO), *National Nuclear Security Administration: Additional Actions Needed to Improve Management of the Nation's Nuclear Programs* (Washington DC: GAO, 2007).

¹⁵ DOE and NNSA define and govern their relationship based on legislation that does not unequivocally assign policy and risk acceptance authority. § 7144 of 42 U.S. Code Chapter 84 reads, "The Secretary shall be responsible for establishing policy for the National Nuclear Security Administration" and "The Secretary may direct officials of the Department...to review the programs and activities of the Administration and to make recommendations to the Secretary regarding administration of those programs and activities, including consistency with other similar programs and activities of the Department." § 7144(a) further states that, "The Secretary shall be responsible for developing and promulgating the security, counterintelligence, and intelligence policies of the Department." These statutes conflict with § 2402(b) of 50 U.S. Code Chapter 41 which declares, "The Administrator has authority over, and is responsible for, all programs and activities of the Administration...including...(2) Policy development and guidance...(6) Safeguards and Security...(9) Environment, safety, and health operations" and § 2402(d) which states "the Administrator can establish NNSA-specific policies unless disapproved by the Secretary."

¹⁶ U.S. Department of Energy, *Departmental Directives Program*, DOE O 251.1C (Washington, DC: Office of Management, January 15, 2009).

and NNSA staff offices.¹⁷ Parallel staffs exist in areas such as General Counsel, Human Capital Office, Public Affairs, Legislative Liaison, Chief Financial Officer, Environmental, Safety and Health (ES&H), Security, and Chief Information Office. Members of both the DOE headquarters and NNSA staffs point to the inefficiencies this creates. For example, NNSA has separate, non-integrated personnel systems and is not participating in an ongoing DOE effort to reduce support costs. The failure of a separately organized NNSA is further elucidated in the examples provided in sub-section C.

As implemented, the NNSA Act has actually been counter-productive. The problems fall into three main areas.

A. Overlapping DOE Headquarters and NNSA Staff Responsibilities

The parallel DOE headquarters and NNSA staff structures increase bureaucracy, cloud decision-making authority, and add to the number of people without clear authority and accountability who can stop or delay decisions. As one field representative put it, “We suffer in a regulatory framework where there are no clear lines of appeal or decision-making and no integrated place for the cost-benefit analysis to be done. For example, regarding facility safety and operational infrastructure, I get direction from the Office of Acquisition and Project Management, the Defense Programs leadership, the leadership for infrastructure management, DOE headquarters, and the Defense Nuclear Facilities Safety Board. How am I to do my job when getting direction from five different organizations?” Outcomes are determined by negotiations among the competing interests, which consume time and energy, and tend to yield ultra-conservative, minimal-risk approaches.

B. A Deepened Divide between Line Management and Mission-Support Responsibilities

Under the existing parallel staff structure, DOE headquarters staffs continue to exercise their mission-support oversight of NNSA, but they do not have the countervailing pressures to accomplish the mission. This structure skews incentives at the DOE headquarters level. These factors create strong and counter-productive incentives to eliminate all risks—large and small—rather than seeking to effectively manage the most important ones. Because many officials in the DOE headquarters have lacked a compelling interest in mission execution (as many outside observers have noted), the staff conservatism is not challenged by the department’s leadership.

¹⁷ Earlier studies arrived at this conclusion as well. “Implementation of the NNSA Act failed to achieve the intended autonomy of NNSA within DOE.” Elizabeth Turpen, *Leveraging Science for Security: A Strategy for the Nuclear Weapons Laboratories in the 21st Century* (Washington, DC: Stimson, 2009). “The governance structure of the NNSA is not delivering the needed results. NNSA has failed to meet the hopes of its founders. It lacks the needed autonomy.” Strategic Posture Commission, *America’s Strategic Posture*.

C. Ineffective and Inefficient DOE Orders, Directives, and Rulemaking Processes

Because of the diversity of DOE operations, orders are often written broadly to apply to both non-nuclear and nuclear activities even though the latter may demand special considerations. Consequently, DOE orders for ES&H and security often lack the precision, consistency, and clear implementing guidance necessary to translate the order's intent into practice. Not all sites have the same version of DOE orders for ES&H and security policy reflected in their contract. Indeed, there are sites that have both NNSA and DOE orders in their contract covering the exact same ES&H topic; although these orders may be similar, they can contain subtle, but crucial, differences.

The ambiguity in applicable standards compounds the problems of resolving issues among staffs who have unclear roles and authorities in DOE and NNSA headquarters and lack structured administrative procedures for decision making. In contrast, other regulatory bodies, such as the Nuclear Regulatory Commission or the Occupational Safety and Health Administration, have formal processes for clarifying the intent of their regulations and resolving issues as they arise, including disciplined risk analysis and risk acceptance procedures. Field participants see the lack of such processes for DOE or NNSA as a key impediment. As one laboratory participant stated, "Even if the lab has a rock-solid technical justification for its design, there is not a central point of contact in NNSA for adjudicating and getting a final decision on a safety-based design change." The frustration is evident: "This process takes a long time; it shouldn't be this hard. And, in this process, there is never any link to cost or mission."

The internal weaknesses in DOE's regulatory apparatus also have significantly weakened the DOE/NNSA's ability to engage effectively with the Defense Nuclear Facilities Safety Board. Congress chartered the DNFSB to provide independent oversight, by identifying safety concerns and raising issues with respect to the DOE's implementation of its own orders. At the same time Congress has recently stated that, "it is incumbent upon the Secretary to reject or request modifications to DNFSB recommendations if the costs of implementing the recommendations are not commensurate with the safety benefits gained."¹⁸ Given the statutory role of the DNFSB as an independent oversight arm for public safety, and the lack of a DOE analytical capability to effectively evaluate options to respond to its recommendations, the DNFSB exerts a dominant influence over DOE's risk management in nuclear safety policies and programs, which at times leads to actions that do not reflect prudent risk management or safety concerns.

¹⁸ "Joint Explanatory Statement to Accompany the National Defense Authorization Act for Fiscal Year 2014," *Congressional Record* 159: 176 (December 12, 2013), H7968.

3. Absence of Sound Management Principles

The panel's benchmarking activities identified a number of proven management characteristics common to successful high-risk, high technology operations. (See Table 2.) Prominent among these are a shared vision and mission priorities to chart the path ahead; the clear definition and disciplined exercise of roles, responsibilities, authorities, and accountability aligned to mission priorities; a technically competent workforce with the right skill mix and capabilities; clear plans with careful analysis of the resources needed to succeed; structured decision-making processes, with an emphasis on timely resolution of issues; and a structure and budget aligned to focus on customer deliverables.

Few of these requisites for success exist across the NNSA's management system--Naval Reactors is one exception. The observations here focus on ten areas where NNSA's management practices are inadequate. In their combined effect, these shortfalls undermine NNSA's leadership, impede accountability, and are corrosive to the culture. NNSA's inadequate resource management practices give rise to unreliable cost estimates and plans that have eroded NNSA's credibility and trust with DOD and Congress. Shortfalls internal to NNSA are compounded by the ill-defined relationships between NNSA and DOE headquarters staffs identified in the preceding section.

One senior NNSA official summed up the current situation for the panel as follows: "An effective management system is timely, accurate, and simple; our NNSA system is none of these." A major overhaul will be needed to align the structure, resources, and decision processes with mission priorities.

Table 2. Criteria for Success in High Reliability, High Tech Organizations

General	<ul style="list-style-type: none"> • Universally understood and accepted purpose • Effective culture developed over many years by transformative leadership and maintained by indoctrinating carefully selected personnel • Adequate visibility with external stakeholders
Structure	<ul style="list-style-type: none"> • Clearly established, codified, and reinforced lines of authority, responsibility, and accountability • Formal, inclusive, decisive, prompt, and documented decision-making processes • Deliberative body, such as a Board of Directors or Management Council, which obliges the organization to collectively engage in risk-based resource allocation decisions to accomplish mission • Separation of program/mission functions from institutional/support functions

Personnel	<ul style="list-style-type: none"> • Long-tenured director and/or senior leadership with extensive experience • Technically proficient and accomplished staff • Exceptional candidates recruited early to instill and sustain culture • Professional development programs emphasizing problem identification/solving, continuous learning, leadership, and the socialization of best practices
Communications	<ul style="list-style-type: none"> • Mission priorities aligned with purpose and frequently communicated by senior leadership • Information flows freely and quickly up and down the organization, and decisions are made at the appropriate levels • Few if any obstacles (people or processes) prevent bad news from moving up the chain of command • Mechanisms exist for field oversight offices and site managers to communicate regularly and directly with the head of the organization
Planning and Budget	<ul style="list-style-type: none"> • Single strategic planning reference document guides all decisions • Unwavering adherence to a disciplined planning and budget process, which is comprehensive and detailed
Program Management	<ul style="list-style-type: none"> • In a government operation, government program managers oversee efforts, but contractors execute the work within established policies • Lean and authoritative site offices have sufficient technical and operational expertise to effectively oversee the work • Stakeholders are included early in project life cycle and strive to understand all requirements and regulations upfront • Technical and financial elements of programs are scrutinized in order to validate efforts and control costs • The more hazardous the operation, the more safety is considered part and parcel of mission performance • Specialized ES&H and security standards are used only when more generally accepted standards (e.g., industrial standards, OSHA standards) are shown to be inadequate or unclear
Contracts	<ul style="list-style-type: none"> • Contracts focused and evaluated on costs and mission performance, not award fees related to aspects other than meeting the mission • Contracts consolidated where appropriate to achieve economies of scale • Contracts competed Cost Plus Fixed Fee (very low) with no incentive/bonus awards or Fixed Price Incentive (based on mission performance), depending on the work being done

A. Lack of a Shared NNSA Vision, Mission Priorities, and Plans

Accountability, organizational alignment, and operating culture all must flow from a common understanding of vision and mission priorities. During the Cold War, the weapons program was driven by an ambitious but relatively predictable product delivery cycle of design, test, and build—which at its peak, delivered up to a thousand new nuclear weapons each year.

Today, there is no agreed-upon national plan for NNSA's future path with identified resources. This lack of clear plans with associated resources and mission priorities to focus

execution is perhaps *the* fundamental flaw in NNSA governance. NNSA and its customers have critical roles in developing the needed strategy, guidance, and resources.

B. Absence of an Effective Operational Culture and Workforce

The NNSA has not taken the steps necessary to build a cohesive culture that instills accountability for customer deliverables, nor has it instituted the personnel programs needed to build a workforce with the necessary technical and managerial skills for operations. The purposeful development of leaders, managers, and staffs is essential to any governance system. The effective organizations benchmarked for this study focus on personnel management to create a reinforcing virtuous cycle: proven leaders emerge from careful selection and decades of experience involving careful development and screening. Such leaders make a system work well. They also attract and inspire other high-caliber people to join and stay in their organizations.¹⁹ As one example, the current Director of Navy Strategic Systems Programs (SSP) started his career within that organization as a junior officer, and almost all of his subsequent assignments have been in the command. In addition to deep familiarity resulting from a long career with the same organization, long command tours provide needed continuity and allow the Director to promulgate and sustain the desired culture. Recently, the tenure of the SSP's Director was extended from about four years to eight years to strengthen this benefit.

A key staffing issue for the NNSA is the lack of operational experience in headquarters. In the peak years of the nuclear weapons program, the operational core of the nuclear enterprise was located in the Albuquerque Operations Office. Albuquerque synchronized the cycle of design-test-build throughout the Cold War, until 1992, when the production of new weapons was suspended. Albuquerque was officially disbanded ten years later, in 2002. NNSA headquarters assumed Albuquerque's operating functions (which were greatly diminished by then since the U.S. had ceased producing warheads), and decades of operational experience, knowledge, and technical expertise within the Albuquerque staff was lost in the reorganization.²⁰

Now, as the United States embarks on an intensive series of warhead life extension programs covering the entire stockpile, a leadership team with deep experience and continuity (such as the team in the Albuquerque Operations Office) would be an enormously valuable asset

¹⁹ At benchmark organizations, the new entrants are carefully screened and selected, in part based on suitability for long-term careers within the organization. Employees tend to spend long careers within the organization. Promotion to the most senior levels (other than a political appointee) is usually from within, and these organizations favor those with broad-based career experience within the organization.

²⁰ NNSA's needs more professionals with proven project management capabilities for the Life Extension Programs and nuclear facilities construction and for individuals with skills in costing and resource management are addressed in Sub-sections G and H, below.

for governing the enterprise. Creating and sustaining a personnel management system to build the needed culture, skills, and experience is a vital component of governance reform.

C. An Unenforced Chain of Line Management Authority

DOE/NNSA roles, responsibilities, authority, and accountability are not clearly defined, aligned, or enforced. As an example, NNSA undertook to draft a Functions, Roles, and Authorities Manual to clarify how the NNSA management system should work, but this manual has never been completed. Experts decry the corrosive effects resulting from the lack of understanding of responsibilities within NNSA headquarters and the field offices. Some mission-support organizations view their role as a mission rather than support functions under which the mission is to be performed. As a consequence, some organizations responsible for mission-support functions often operate independently of line management. The problems within NNSA are further aggravated by the confusing governance relationships with DOE headquarters staffs, as discussed in the previous section.

The confusion in roles and responsibilities is compounded by several other flaws in NNSA's operating model: the lack of systematic processes for decision making; the absence of sufficient authorities for program managers to be accountable for major deliverables; and the high degree to which budgets are partitioned across the enterprise. These related issues are discussed in turn.

D. Lack of Mechanisms for Timely, Informed Decision Making

Effective organizations employ structured decision-making mechanisms to clarify roles and responsibilities and to integrate the performance of mission-support functions with line management responsibilities. Such processes not only expedite decision making, they also clarify who can say yes and who can say no when decisions need to be made. Effective organizations systematically track issues. They document decisions and follow up. They empower people to take decisions as far down the management chain as is reasonable, and they have procedures for elevating issues up the chain when necessary. They measure timeliness of decisions, and they study and improve the decision-making process itself.

Few, if any, such decision mechanisms exist in NNSA today; NNSA lacks structured processes that ensure information is shared, problems are surfaced, and timely decisions are made. This creates operational problems across the enterprise. Field operators find they sometimes must petition numerous headquarters staff offices for answers on policy or resource issues.

E. An Inflexible Budget Structure that Undermines Mission Execution

The problems with decision making are amplified today by NNSA's attempt to manage the operating sites with detailed budgets and milestones. Historically, the Albuquerque Operations

Office integrated the execution of programmatic work for the weapons within and among the sites. Sites were funded to provide a level of capability, the Operations Office coordinated the work within that capability, and there was considerable flexibility to adjust within fairly broad budget categories. Close coordination between operations and budgeting officials enabled this approach to work well when DOE was producing hundreds of new weapons per year, and this demanding but fairly predictable workload provided the momentum for driving a cycle of work on new designs, testing, and manufacturing.

Effectiveness and efficiency have been undermined as the budget structure has become more detailed and the control of the budget has been dispersed across many NNSA headquarters' organizations. No doubt this provides a degree of control for NNSA offices, but it also creates a high degree of complexity for managers at all levels. The result is increased delay and bureaucratic friction, and reduced programmatic and operational flexibility.²¹ The combination of detailed budgeting, diffused responsibility, and poor communications practically guarantees wasteful execution. Today there are thirteen Deputy and Associate NNSA Administrators with mission and mission-support functions. These offices are responsible for eighty-two congressional budget items, and they issue hundreds of more detailed budget reporting lines to the sites. (LANL reported that NNSA funds are provided with over 500 budget reporting lines and associated milestones; Pantex reported its number is 225. Other sites have comparable numbers.) If one believes in the adage, "the government is what it funds," then the NNSA is a collection of hundreds of weakly integrated projects.²² The overlay of confused roles and responsibilities, in combination with highly detailed budgets, begets inefficient and ineffective mission execution.

Those in the field report that they often must act to integrate funding across the resource owners in NNSA. In many cases, sites are unable to focus resources on the enterprise's priorities because the budget and reporting lines are too detailed and they do not have the ability to move resources to where they are needed to meet those priorities; headquarters program managers will penalize them if they try or it may require a Congressional reprogramming. For example, one site was provided all the funding needed for a task within Directed Stockpile Work, but the site received only 75 percent of the funding needed to meet that task's associated security requirements. Indeed, in the case of Directed Stockpile Work, NNSA has some 1,000 budget

²¹ National Academy of Public Administration, *Positioning DOE's Lab's for the Future: A Review of DOE's Management of Oversight of the National Laboratories* (Washington, DC: National Academy of Public Administration, 2013).

²² The site-specific impact of this is highlighted by other sources. "The budgetary controls that have led to the creation of thousands of 'funding buckets' significantly reduce the labs' flexibility; creates excessive administrative costs and burdensome reporting requirements; and impedes mission accomplishment." *Ibid.*, 27; see also National Research Council, *Managing for High-Quality Science and Engineering at the NNSA National Security Laboratories* (Washington, DC: The National Academies Press, 2013), 4.

reporting lines. Budgetary inconsistencies such as this lead to substantial delays and undermine efficient mission execution.

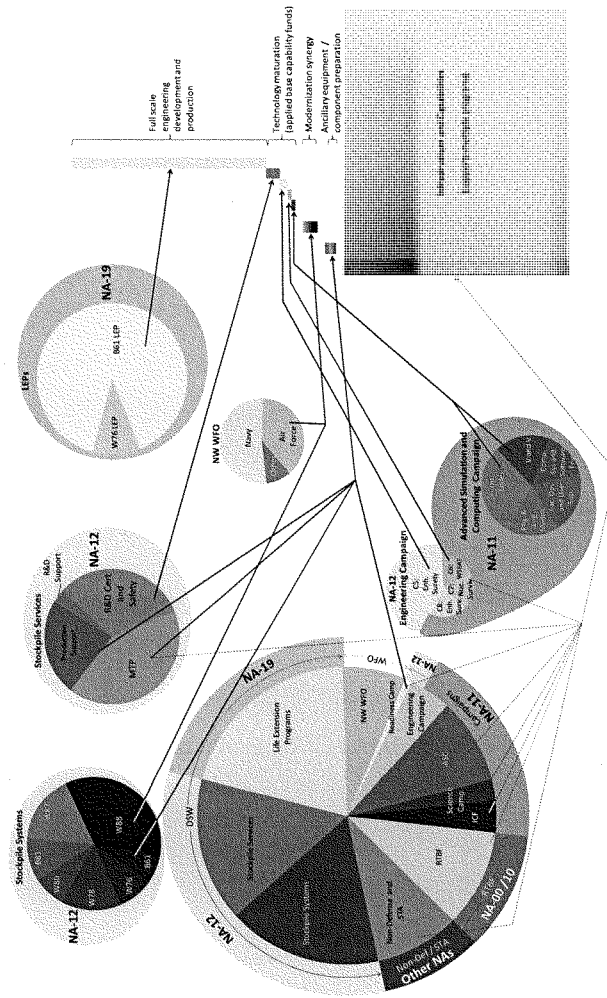
An example of the implications for program execution are illustrated in Figure 1. In FY13, B61-12 LEP work at Sandia was funded by more than twenty NNSA funding sources. Control of this funding is spread over numerous headquarters offices, and every budget category has several headquarters proponents involved in every decision related to that specific category. Managing funding at this level of detail creates major coordination demands: given the lead times associated with government budget cycles, the integration of resources across budget categories needs to be planned and allocated about a year in advance, and continual adjustments are necessary to integrate program needs and funding throughout program execution.

F. Insufficient Authorities for Warhead Life Extension Program Managers

In effective organizations, the program manager controls the funds and staffs necessary to deliver on program commitments safely, on-time, on-cost, and in an environmentally responsible fashion. The program manager is accountable. The role of the mission-support staffs is to provide the support to line managers needed to assure that this is done. This model is not in place today within the NNSA. Warhead life extension program managers lack authorities and resource control; they serve as weak coordinators with no direct authority over the resources or personnel necessary to execute their programs.

Consider, for example, the question of who *has responsibility* for the B61 Life Extension Program (LEP). At the technical level, there is a well-defined set of responsibilities and accountability for managing individual LEPs, and a well-defined process—the 6.X process—that guides LEP development and production:

- The director of the laboratory responsible for the B61 physics package, in this case Los Alamos, is responsible for managing activities to generate engineering design information for the nuclear explosive package. This involves close coordination with Y-12 for secondary design and subsequent delivery to Pantex.
- The Director of Sandia is responsible for managing the non-nuclear component design, development, and testing and for integrating the nuclear explosive package and non-nuclear components into the bomb. This involves close coordination with component production activity at Sandia and Kansas City, and delivery of data and products to Pantex for assembly. For the B61 LEP, Sandia is also responsible for technically integrating the bomb with the DOD-provided bomb tail-kit assembly.



Source: Sandia Briefing to the National Security Enterprise Panel.

Figure 1. NNSA Organizations Controlling Budgets for B61-12 Work at Sandia

The shortfall in the current system is that there is no overall program manager to synchronize the full range of needed work across all the involved sites. The program manager must have the authority, staff, and resources necessary not only to ensure the labs and plants engage productively on the technical work, but also to ensure needed facility investments and ES&H approvals and permits are in place; and to re-allocate resources across activities and sites to keep a program moving. Whereas in a program-driven budget structure, the bulk of funding would flow through the responsible program offices, in NNSA a high proportion of funding control rests in mission support areas, each with a set of responsible managers and proponents whose objectives may not be aligned with those of the program manager.²³ As a result of the detailed budget allocations and dispersed control, program managers lack needed authority and mission-support staffs have substantial influence over resource decisions, independent of the line program managers. Execution requires program managers and field personnel to spend an inordinate amount of time negotiating transfers among NNSA stakeholders or to seek reprogramming authority from Congress. Lacking an empowered and accountable program manager, customers cannot have confidence in proposed plans or the ability to execute according to the plan.

G. Absence of Trusted Cost and Resource Analysis

A capability for independent cost estimates for major acquisition programs, coupled with a disciplined cost reporting system, is essential to effective program scoping and initiation, resource planning, source selection, and contract oversight and management. NNSA lacks expertise, data, and tools for independent costing, requirements evaluation, and program planning. Initial cost estimates for major NNSA programs have been found to be off not by 20–30 percent but by factors of nearly two to six:

- B61 LEP: An initial estimate (2010) assumed that the cost would be comparable to that of the W76 LEP in the range of \$4 billion. However, lab experts, when engaged by NNSA, concluded that the B61 LEP would be much more complex than the W76. When the final B61 LEP cost report was completed, the estimate rose to \$8 billion. DOD's Cost Assessment and Program Evaluation (CAPE) reviewed the program; it estimates the cost at over \$10 billion. This estimate reflects still-unresolved differences between CAPE and NNSA on the timeline for LEP completion.
- Los Alamos plutonium facility (the Chemistry and Metallurgy Research Replacement, or CMRR): An initial estimate (2005) placed the ceiling at \$975 million; by 2010 this

²³ For example, in the 2015 Budget Request the bulk of weapons activities funding can be found in three major categories (Directed Stockpile Work (\$2.7 billion), Campaigns (\$1.7 billion), Readiness in Technical Base and Facilities (\$2.4 billion)).

ceiling had risen to \$5.8 billion, with a three to seven year delay. Now, the project is being deferred five years, and the design is being reconsidered.

- Y-12 highly enriched uranium processing facility (UPF): An initial estimate (2004) placed the maximum at \$1.1 billion; this was raised to \$3.5 billion (2007), and then to \$6.5 billion (2010). An independent review by the Army Corps of Engineers placed the maximum cost at \$7.5 billion (2011). Recently discovered design flaws (the ceiling is too low) add an additional \$0.5 billion. Now, the project is being delayed and the design is being reconsidered.
- Savannah River plutonium disposition facility (the Mixed-Oxide Fuel Fabrication Facility, or MOX): DOE approved a cost estimate of \$4.8 billion (2007) and start of operations in September 2016. Although construction began in August 2007, NNSA subsequently increased the estimate to \$7.7 billion (2012) with the start of operations delayed to November 2019. Now the project is in a strategic pause as DOE evaluates other options for plutonium disposition.

NNSA's poor track record of planning for and estimating the costs of these and other major projects is a major source of dissatisfaction among the national leadership and customers, and further undermines NNSA's credibility. Both NNSA and DOE are engaged in initiatives to create needed independent cost estimating capabilities, including the development of the requisite staffs, tools, and data. Success with these initiatives will help repair its damaged credibility, and will be an essential precondition for NNSA to regain trust with its critics.

H. Absence of Proven Practices for Project Management

Proven practices for project management have not been adopted. Program and project management is not supported at the staffing and funding levels that the private sector and other agencies have demonstrated are necessary to assure success, especially in the field, for the duration of major projects. Funding levels for reserves and contingencies are not even close to levels that have been demonstrated as necessary for major projects, especially recognizing the unique technical nature of many of the NNSA's projects. When projects or programs proceed from *design* stages to *production* stages, there is not adequate configuration control of designs and too many unnecessary subsequent changes are allowed.

The management practices for infrastructure upgrades and major facilities construction are also problematic. DOE's guidance for such projects is contained in DOE Order 413, which aligns with the management practices prescribed in OMB Circular A-11 for Capital Acquisition projects.²⁴ However, Order 413 is offered and viewed as *guidance* and not as required practice,

²⁴ Office of Management and Budget (OMB), *Preparation, Submission, and Execution of the Budget*, Circular A-11 (Washington, DC: Executive Office of the President, July 2013)

so adherence and enforcement are weak. For instance, rigorous planning processes at the front end of a project, such as Analyses of Alternatives, are lacking. Circular A-11 covers everything from roles and functions to legal framework to the actual transmission of White House policy in the budgeting process. OMB requires agencies to establish a disciplined capital programming process that addresses project prioritization between new assets and maintenance of existing assets; risk management and cost estimating to improve the accuracy of cost, schedule and performance provided to management; and the other difficult challenges posed by asset management and acquisition. In establishing its Acquisition and Project Management Office, NNSA is trying to bring such discipline to NNSA project management.

I. Shortfalls in Facilities and Infrastructure Modernization

The enterprise is failing to plan for, fund, and execute required nuclear facilities and infrastructure modernization. Aside from the needed capital investments in major nuclear facilities, touched on in the preceding section, there is an ongoing need to maintain, upgrade, and modernize facilities across the operational sites. The enterprise comprises: 2,160 square miles (including 8,000,000 feet of fencing and 2,540 total lane miles of paved road)—roughly the size of Delaware. It includes approximately 3,800 facilities. About 54 percent are over forty years old, 29 percent are over sixty years old, and 12 percent are no longer in use.

While customers of the enterprise widely recognize the need to recapitalize the enterprise's equipment and facilities, investments in infrastructure do not receive the same priority as program work. The enterprise's deferred maintenance, along with long-delayed capital construction projects, are looming problems. Current estimates place immediate deferred maintenance requirements at \$3.5 billion. Throughout the enterprise, the panel heard evidence of failing infrastructure, lack of sufficient funding, and no clear path forward. Examples include

- the Microelectronics Lab (tool failure leads to risks in the LEP/Alteration schedule and cost);
- Tonopah Test Range (equipment issues and potential failure pose a risk to the B61-12 schedule and cost);
- Weapons Evaluation Test Laboratory (centrifuge failure risks impact on surveillance program); and
- the Perimeter Intrusion Detection and Assessment System (PIDAS) at Pantex needs updating. (Effective security at Pantex is essential for all stockpile work.)²⁵

²⁵ The current plan is estimated to cost about \$350 million, which would replace and modernize PIDAS in Zones 4 and 12. Pantex's original plan called for an option costing \$1 billion or more, but they modified the design and substantially lowered the cost.

One root problem is a lack of a capital budgeting process for systematically planning and funding investments within NNSA. No successful U.S. private sector company would seek to operate without a capital budgeting process. A second problem is the unreliability of NNSA cost estimates, as discussed previously. One workaround used for modernizing infrastructure that DOE/NNSA might consider more often is private, third-party financing for new facilities that are operated under long-term leases. This approach was employed to acquire the new production facility for the Kansas City Plant and two new office buildings at the Y-12 site.

J. Poor Communications

NNSA's leadership is not communicating effectively—with national leaders, its customers, or internally. Among staffers and Members of Congress, NNSA has lost credibility, undermining efforts to provide a coherent enterprise-wide message. Staffers choose to, or are driven to, engage a number of sources throughout the enterprise to obtain accurate information about programs and issues; they have cited a need to always *pull*, because there is no effort by the NNSA to *push* requisite information. They also indicate that the story is often inconsistent from one source to the next. Staff members in the Executive Branch shared similar concerns. In addition, interlocutors on Capitol Hill and inside DOE indicated that leaders in the field, including M&O leadership, have engaged directly with Members of Congress, without coordination with headquarters. Staffers and Members also indicate they have been surprised during formal hearings with new information about cost projections and budget requirements.

Within the NNSA, there is clear evidence of communication gaps, both upward and (especially) downward. People in the field spoke of the length of time required to obtain an answer from headquarters. Headquarters staffs spoke of difficulties caused when field staff have not shared information or have circumvented headquarters with needed information. Such poor communication up and down the chain is contrary to benchmarking examples in which well-run organizations highlight the importance of quickly reporting bad news to higher authorities, without running the risk of retribution. High performing organizations enforce discipline in effective communications; if there is a penalty, it occurs when a subordinate fails to report bad news.

Customers spoke of needing to go directly to field staff to obtain answers on program status instead of hearing it from NNSA headquarters, and field personnel spoke of needing to hear about requirements directly from customers instead of from headquarters. Field staff also noted instances when headquarters reached down to the working level, circumventing the field managers, to provide instruction on what it wanted done, with little regard or appreciation for the implications that such direction would have for the overall program.

For the enterprise workforce, there is a need to clearly communicate mission and objectives, to include how enterprise missions are knit together around a central nexus of national security. A recent in-person visit by a key NNSA leader to a number of field sites was

described as the first time in many years any leader of such stature had made time to visit worksites and talk to rank-and-file workers.

4. Dysfunctional Relationship between Government and Management and Operating (M&O) Partners

Strong industrial and academic partners and a healthy working relationship are vital to the success of the nuclear security enterprise. There is concern across the NNSA complex that the needed relationships have eroded over the years, and have become more of an arm's length contracting relationship than the needed partnership.

In effective organizations, the government sponsor decides *what* is needed and the M&O partner, in particular the Federally Funded Research and Development Center, decides *how* to meet that need. This theory of respective roles and responsibilities is summarized in Table 3. Put in the simplest terms, the government should identify the work to be done; identify the best performer to do the work; provide adequate resources; and hold the performer accountable. Under this construct, a competent M&O partner is relied upon to provide the expertise, corporate culture and leadership sufficient to execute the work, and meet the government's operating standards.

Changes in mission priorities, performance expectations, and cultures have worked to erode the partnership between the government and its M&O contractors established during the Cold War. After the Berlin Wall fell on November 9, 1989, mission priorities underwent major transformation, while in parallel the nation's demands in the areas of environmental management, workplace health and safety, and security grew significantly.²⁶ Two actions that profoundly affected the nuclear enterprise were President George H.W. Bush's decisions in 1992 to stop producing new nuclear weapons and to suspend underground nuclear testing. These actions ceased the well-established weapons complex product delivery cycle of design-test-build that had organized work throughout the Cold War. In the early 1990s, the DOE identified Science Based Stockpile Stewardship as the strategy for sustaining the reliability and safety of the nuclear warheads, while simultaneously sustaining weapons research and development through investments in key stewardship capabilities, including advanced computing, fusion

²⁶ In response to growing public concern over environmental hazards and nuclear safety (Three Mile Island occurred in March, 1979; Chernobyl occurred in April, 1986), significant actions were taken to tighten the regulation of weapons complex facilities and operations. Congress established the Defense Nuclear Facilities Safety Board (DNFSB) in 1988. The board was created to provide an independent observer and advisor on nuclear facilities safety. Admiral James Watkins became the Secretary of Energy in March 1989. In June of that year, Watkins announced the Ten-Point Plan to strengthen environmental protection and waste management activities at the U. S. Department of Energy's production, research, and testing facilities. Included in the plan was the creation of "Tiger Teams" to identify possible environment problems and violations across the DOE complex. Watkins also modified contracts to provide stronger incentives to address ES&H matters. On November 9, 1989, Watkins established the Office of Environmental Restoration and Waste Management. The joint FBI-EPA raid on the Rocky Flats plutonium facility in June of that year was perhaps the most publicly visible demonstration of the shift in focus.

research, materials properties research, and non-nuclear component testing. But the weapons production complex was allowed to deteriorate to the point where today's NNSA is carrying out warhead life extension work at facilities that were commissioned shortly after the Manhattan project.

Table 3. Roles and Responsibilities

Government	M&O Partner
<ul style="list-style-type: none"> • Selects M&Os • Assigns tasks; Sets standards <ul style="list-style-type: none"> – Mission deliverables – Operating standards for ES&H, Security, other functions • Provides resources • Accepts deliverables <ul style="list-style-type: none"> – Also, validates practices are consistent with operating standards • Holds M&O accountable <ul style="list-style-type: none"> – Incentives: fee, contract extension, future tasks and resources assigned • Acts as landlord <ul style="list-style-type: none"> – Provides for the weapons complex facilities and infrastructure – Holds permits and owns the associated facilities and infrastructure risks • Ultimately owns the overall risk 	<ul style="list-style-type: none"> • Provides for management and capabilities for executing national security enterprise tasks • Advises government sponsors in the areas of its expertise • Applies corporate leadership, culture, processes, and discipline to ensure efficient operations <ul style="list-style-type: none"> – Validates that corporate management practices meet functional standards (ES&H, Security, Finance, Human Capital, etc.) • Executes tasks and delivers <ul style="list-style-type: none"> – Science, Engineering, Manufacturing • Stands accountable for performance and designated operational risks

The changes in mission priorities from design and production to stewardship, and heightened regulatory oversight, overturned accepted priorities within the nuclear weapons program and radically altered the well-understood relationships between line managers and mission-support functions within the government as well as between the government and the M&O contractors. In the view of one long-tenured laboratory leader: "Historically the job was to accomplish the mission safely and securely. Beginning with Secretary Watkins' Tiger Teams, the job began to change to 'Make sure nothing bad ever happens'—with little regard to the ability to accomplish NNSA's missions."

The resulting tension in defining the roles of the M&O contractors and the Federal mission-support officials has created significant friction in the government-M&O relationships, especially at the laboratories. This friction has been exacerbated by the more recent transition to for-profit M&O contractors at the laboratories, leading to a heightened, if incorrect, perception on the part of Federal personnel that the M&Os are driven by profit first and national service second. As a result, DOE/NNSA has increasingly moved toward detailed direction and regulation of the M&Os.

A 2012 National Research Council of the National Academies study concluded there is little trust in the relationship between the laboratories and NNSA. NNSA has lost confidence in the ability of the laboratories to “maintain operation goals such as safety, security, environmental responsibility and fiscal integrity.”²⁷ The panel finds that this lack of trust is manifested in three ways: NNSA’s use of increasingly inflexible budgets and milestones to control work at the operating sites; the continued reliance on transactional regulation and oversight to enforce behavior; and the exclusion of M&O executives from NNSA headquarters deliberations in setting strategic direction. This management approach is costly, unwieldy, and counterproductive as further discussed in sub-section D. It creates a high degree of management complexity, puts detailed decisions in the hands of headquarters personnel who lack a complete understanding of field operations or technical requirements, undermines accountability, creates incentives to focus attention on administrative matters over program substance, and incurs excessive costs in administering the relationship.

A. Breakdown of the Federally Funded Research and Development Center (FFRDC) Model

The FFRDC model for the NNSA labs has been lost. Historically, the Federally Funded Research and Development Centers—the laboratories—have played a key strategic role as *trusted advisors* in informing the government regarding effective execution of the mission. The historic, statutorily-defined relationship between the FFRDC and its sponsor includes²⁸

- Comprehensive knowledge of sponsor needs—the mission, culture, expertise, and institutional memory regarding issues of enduring concern to the sponsor
- Adaptability—the ability to respond to emerging needs of their sponsors and anticipate future critical issues
- Objectivity—the ability to produce thorough, independent analyses to address complex technical and analytical problems
- Freedom from conflicts of interest and dedication to the public interest—independence from commercial, shareholder, political, or other associations
- Long-term continuity—uninterrupted, consistent support based on a continuing relationship

²⁷ National Research Council, *Managing for High-Quality Science and Engineering at the NNSA National Security Laboratories*, 5.

²⁸ Source: Defense Acquisition University.

- Broad access to sensitive government and commercial proprietary information—absence of institutional interests that could lead to misuse of information or cause contractor reluctance to provide such information
- Quick response capability—the ability to offer short-term assistance to help sponsors meet urgent and high-priority requirements

The benefit is that an FFRDC can function as an independent, trusted advisor and honest broker. The FFRDC is answerable only to the government customer and has no vested interest in particular technologies or solutions.

The transition to for-profit contractors, combined with laboratory competition to increase their work for other agencies, has called into question the assumptions regarding their objectivity and the primacy of the public interest in their operations. Consequently, the FFRDC role has increasingly been replaced by one whereby the laboratories are perceived as *contractors* rather than as *partners* who are relied upon to help resolve issues and successfully deliver the mission. Laboratory Directors expressed their central challenge as the lack of any forum for *strategic dialogue* between NNSA leadership and their labs.²⁹ Indeed, one executive reported that his team learned about the site's FY14 budget through the trade press, rather than from NNSA headquarters.

B. Blurred Responsibility for Risk

Ambiguous relationships blur the responsibility for risk at the operating sites. The panel finds that the respective roles and responsibilities of the government and M&O contractors are not consistently and clearly stated or understood. Rather, they are unique to each site and evidently have emerged over time from the cumulative interactions of government and M&O personnel. Indeed, the panel has been told many times that the relationships between the M&Os and government personnel can vary from site to site and from issue to issue, depending largely on the personalities involved. While a certain degree of difference across sites is understandable, there is a need for leadership to impose consistent policies and procedures across the enterprise. The panel recognizes that NNSA's new Infrastructure and Operations Office is trying to achieve greater consistency in procedures across the enterprise, but its integration with other policy and program offices remains unclear.

Ambiguity is pronounced when it comes to the fundamental question, "Who owns the risk?" In the case of the Kansas City Plant, for example, the Field Office and Plant manager

²⁹ The laboratory leadership views were expressed in the "Tri-Lab Letter," which provides their characterization of the degraded relationship and recommended changes. See Penrose C. Albright, Charles F. McMillan, and Paul J. Hommert, "The Model for the National Nuclear Security Administration and its Laboratories: Recommendations for Moving Forward" (April 17, 2012).

stated unequivocally that they co-owned the risk. At the Savannah River Site, the contractor has taken ownership of the risk and conducts routine internal management reviews to find the right balance in the operation of its activities. Generally, multiple individuals in the government and the M&O contractor will lay claim to owning the risk, but the sense of responsibility and explanations differ from site to site. Additionally, there is no mechanism for integrated decision making with respect to enterprise-wide risks.

C. Costly and Ineffective Transactional Oversight

Transactional oversight is expensive and counterproductive.³⁰ From the perspective of the field looking up at headquarters, the effect of NNSA's ever-changing organizational structure is layered oversight, created by the rise of unaligned and confusing mission-support staffs. The operating entities of the enterprise face a phalanx of oversight agencies, exacerbated in part by the flawed DOE/NNSA governance structure discussed earlier. The result is uncoordinated efforts to address the mission's safety and security and environmental stewardship without regard to effectiveness, cost, schedule, risk, or mission impact. In turn, the view from headquarters looking down to the field shows a complex, dispersed set of sites, each with its own constituencies and agendas. Its current configuration raises the inevitable question: what is the appropriate future organizational structure (to include infrastructure capacity) for the enterprise?

Excessive and uncoordinated inspections, audits and data calls fuel inefficiencies and generate little value added; in fact, they may detract from the desired safety or security outcome. Under the current system, elements in the field are subject to review of their programs by Federal Field Office staffs; NNSA functional staffs; DOE's Health, Safety, and Security office; the DOE Inspector General; the DNFSB; and OSHA. At Sandia in FY13, for example, there were seventy-eight external audits. There also were four Work for Others (WFO) external audits conducted with overlapping scopes. In FY12, there were eighteen reports by the Government Accountability Office or DOE Inspector General; in FY13 the number rose to twenty-nine. This is in addition to approximately thirty internal audits. At Y-12, the Uranium Processing Facility project averages three external reviews per month. These audits, reviews and assessments all consume time and energy to prepare for, conduct, and then follow up on any actions.

When asked why a person holding line responsibility can't say no to these external reviews, the reply was "many of these are mandated by Congress, so we cannot push back. There is no

³⁰ As described by one former laboratory director, "Transactional oversight entails setting precise steps to be followed and examining implementation of each step with more than 100 Federal employees at each site and hundreds of external audits annually. By its very nature, this process is extremely conservative, risk-averse, and avoids appropriate cost-benefit considerations." George H. Miller, Director Emeritus, Lawrence Livermore National Laboratory, "Opening Remarks and Summary," Hearing of the Armed Services Committee Strategic Forces Subcommittee, U.S. House of Representatives (February 16, 2012), 2, accessed April 3, 2014, http://armedservices.house.gov/index.cfm/files/serve?File_id=619ff080-e877-43f6-918f-66be678cf721.

gatekeeper of these reviews.” There are also multiple and duplicative inspections and data calls. This multiplicity of inspectors and overseers is not rationalized or synchronized. There is insufficient integration of findings to determine the overall impact on mission or risk acceptance.

Witnesses note that the focus on compliance checklists can actually divert attention from the substance of safe and secure mission performance. The Y-12 security incident illustrates this problem. In this case, the security contractor was highly rated by DOE just prior to the incident in which an octogenarian nun and several activists penetrated the security barrier. The contractor had met the compliance criteria, but that did not ensure the facility was secure, and long-standing complacency regarding false and nuisance security alarms along the perimeter fencing led to what can at best be described as a poor response. A major security review had been undertaken shortly before this incident, yielding a clean bill of health at the site. In the case of the Uranium Processing Facility (again at Y-12), none of the many external reviews uncovered a major design flaw (the building height is too low to accommodate needed equipment), which is now being fixed. Hence, multiple layers of process cannot ensure zero risk and high confidence in mission performance. Indeed, such activities can generate late changes in requirements that are costly and excessive. In another case, the panel was told of a requirement that LLNL purchase large safes to store small arms (22 caliber) ammunition, but these were then located within a vaulted space where tens of kilograms of high explosives were handled routinely, which would appear to be an illogical decision.

Evidence of the high costs of transactional regulation and oversight is provided by the gains achieved from the successful reform of regulation at the Kansas City Plant. Beginning in 2005, DOE exempted the Kansas City Plant from DOE orders in areas where there were relevant commercial or industrial standards. The reforms moved the Kansas City Plant under industrial best practice standards (e.g., International Organization for Standardization (ISO) standards) with validation from external expert bodies. Kansas City Plant officials estimate that this initiative reduced the DOE-specific regulatory requirements on the facility by about 55 percent. These changes, coupled with internal business process improvements, have generated steady increases in workplace performance along with reduced mission-support costs. The plant reports that its safety record has improved under the reformed regulatory regime, and is about six times better than U.S. industry averages.³¹ A 2008 independent audit following the reforms estimated

³¹ In 2012, the total reportable cases of workplace injuries for the Kansas City Plant were .4, for the weapons complex .9, and for U.S. industry 2.4. (Total reportable case rate = cases per 100 full-time employee work years (200,000 work hours)).

an overall personnel savings of about 12 percent.³² In parallel, the NNSA site office was able to reduce its staff by 20 percent, from fifty to forty staff.

An internal NNSA Enterprise Re-Engineering Team concluded that the “Kansas City model” of relying on applicable industrial standards could be much more widely applied for non-nuclear functions within the enterprise, and targeted an initial expansion for Sandia and the Nevada National Security Site. However, initiatives to adopt elements of the “Kansas City model” at these sites have thus far been denied by DOE/NNSA headquarters staff. Nonetheless, this remains a significant governance reform opportunity.

D. Misguided Contract Incentives

Contract incentives reinforce the transactional nature of the relationship and undermine the FFRDC partnership with the NNSA laboratories. Significant award fees combined with mission-support-oriented performance evaluation criteria are troublesome in that they reinforce DOE/NNSA’s emphasis both at headquarters and in the field on functional compliance and not mission performance.

Contractual arrangements also can limit the contributions of the M&O contractor parent organizations. At some sites, the parent organization is exerting a strong influence: the Kansas City Plant offers an example in which the parent company is aggressively driving a proven corporate culture into the workplace. However, several issues that have hindered the broader realization of these objectives need to be considered in clarifying future roles: First, in the limited liability corporation (LLC) model, the winning team brings an executive management team to the role of the M&O contract, but the existing workforce stays in place to perform the work while the senior executives come from and frequently rotate back to their parent companies after a few years. The LLC teaming approach can limit the influence of corporate culture if there is no dominant culture within the multi-company construct. Second, fully exploiting reach-back to the large parent companies that comprise the LLC, a purported benefit of the LLC contracting approach, frequently cannot be pursued due to conflicts of interest or restrictions embedded in the contract itself. At the same time, even without contract constraints, there is limited evidence of LLC partners exploiting their corporate reach-back potential to improve operations at the sites. Third, the ability of an LLC partner to contribute its culture and practices is contingent on how closely its core competencies parallel the needs of the laboratory or production plant. Industrial best practices and the *business* of large contractors often do not translate into the operations of a national weapons laboratory.

³² J.W. Bibler and Associates, “Kansas City Site Office Oversight Plan: Assessment of Implementation Cost Savings” (January 2008). More recently, the plant management reported to the panel that the headcount of ES&H specialists in the M&O was reduced by 81 percent (between 1995 and 2012)

Last, and most important, performance evaluation criteria that focus incentives on compliance do little to encourage building a strong M&O leadership team. The recent transition to Strategic Performance Evaluation Plans could help catalyze the shift away from transactional oversight, but this transition will require a sweeping cultural change at NNSA and its Field Offices and a redesign of the weighting of the performance objectives to better capture M&O contributions to mission priorities.

It is clear that the recent acting NNSA Administrator recognized the problems with the government-M&O relationships. He has been working to clarify roles and responsibilities, focusing on the relationships among the NNSA Administrator, the Field Office Managers, and the M&O executives. In the field, there is evidence of improved communication and collaboration between the M&Os and the NNSA Field Offices, especially at the plants. They have demonstrated a willingness to share information and otherwise communicate and collaborate, embracing the concept that they are a team ultimately working toward the same purpose. Much more attention to clarifying and managing these relationships will be needed.

5. Insufficient Collaboration with Customers

The panel examined the relationships between NNSA and weapons customers in DOD, as well as other customers in DOD, Department of State, Department of Homeland Security, and the Intelligence Community. The most serious collaboration issues are with the DOD weapons customers. On the whole, other customers who currently are working with the NNSA laboratories and plants say they are satisfied. Even here, however, detailed oversight of transactions impedes partnerships; a more strategic collaborative approach could strengthen capabilities and improve the services provided.

Collaboration between NNSA and the weapons customers in DOD occurs primarily through the Joint DOD-DOE/NNSA Nuclear Weapons Council, its subordinate Standing and Safety Committee and staff “action officer” working groups, as well as through the Project Officer Groups responsible for each type of nuclear weapon in the inventory.³³ These are deliberative or advisory bodies with no formal decision-making authority.

The DOE/NNSA-DOD relationship has been significantly stressed over the past several years, due largely to failed attempts to converge on a plan for modernizing nuclear weapons and nuclear facilities. Within the past two years, at the behest of the Chairman of the Nuclear Weapons Council and under the leadership of U.S. Strategic Command, the DOD has produced the “3+2 Strategy,” outlining DOD’s warhead and delivery platform needs over the next three decades and the NNSA infrastructure required to support DOD’s needs.³⁴ The Nuclear Weapons Council has vetted and endorsed the conceptual underpinnings of this approach, but agreement on the details remains elusive within DOD as well as between NNSA and DOD. Furthermore, it is important to note that the agreement on the conceptual underpinnings does not dictate decisions in the budget processes of the two departments.

The stress in the DOE/NNSA-DOD relationship reflects the ongoing give-and-take in determining an affordable mix of programs for modernizing delivery platforms, nuclear weapons, and nuclear infrastructure and for synchronizing the delivery of these capabilities over

³³ The USD(AT&L) is the chairman of the Nuclear Weapons Council. The other four members are: Vice Chairman, Joint Chiefs of Staff, Undersecretary of Defense (Policy), Commander, USSTRATCOM, and Under Secretary for Nuclear Security of the Department of Energy (Administrator, NNSA). The Services and other staffs are invited to participate as observers.

³⁴ “3+2” is a concept that outlines the types and timing for the warheads required in the stockpile over the next three decades, in accordance with current policy guidance. It seeks to synchronize the necessary life-extension programs with the planned delivery platform recapitalization efforts. It also seeks to describe the reduction of warhead types via consolidation and retirements thereby making the management of the stockpile more efficient. The concept, if and when it is fully realized, will narrow the number of warhead types to “3” for ballistic missile delivery systems and “2” for air-delivered delivery systems.

the coming decades. The efforts to converge on the needed plan will continue: statements in the DOD's FY15 budget submission and in the *Quadrennial Defense Review* describe the DOD commitment to invest in modernizing its delivery platforms, nuclear weapons, and supporting infrastructure "in collaboration with the Department of Energy."³⁵ Many DOD witnesses have expressed frustration with the lack of progress, and have suggested to the panel that the Nuclear Weapons Council mechanism should be strengthened to drive the needed convergence between DOD and DOE/NNSA on mission priorities and resource plans. Other witnesses have countered that these mechanisms work well for their intended purposes.

While there is commitment to progress among all parties, several specific issues remain to be addressed.

A. Lack of Effective Joint Planning and Budget Coordination

Although there is currently some agreement between DOD and DOE/NNSA on the long-term concept for modernizing the stockpile, they have not converged on a long-term resource plan, nor have they converged on near-term mission and budget priorities. There remain fundamental differences in views on the appropriate composition of the weapon life extension program and the timing of deliverables. Additionally, coordination suffers from the departments' differing resource management systems, the lack of joint program reviews, and the lack of coordination in the timing of their budget submissions. Lastly, their coordination mechanism—the Nuclear Weapons Council—lacks enforcement authority for the agreements reached within its deliberations.

There are also significant process issues that need to be addressed. The Nuclear Weapons Council process has been unable to achieve the integrated teamwork and staffing required before decisions are prepared for Council meetings, despite many attempts at establishing disciplined staff processes and follow up. Representatives of customer organizations designated to facilitate communication with the NNSA testify that they often are unable to obtain consistent answers from their NNSA counterparts, prior to briefings at the Nuclear Weapons Council.

B. Lack of Information-Sharing and Trust

NNSA's unreliable planning and cost estimating, combined with its lack of openness, has engendered significant distrust within the DOD. Beginning in 2010, the DOD has worked with DOE/NNSA to transfer funds from DOD's proposed budget to the NNSA account for weapons activities essential for sustaining deterrence capabilities—including LEPs, stockpile surveillance, Chemical and Metallurgy Research Replacement (CMRR), and UPF.

³⁵ DOD, 2014 *Quadrennial Defense Review*, p. 32.

NNSA and DOD staffs spent much of 2012 working to achieve a common resource plan for the enterprise that would be geared to meeting DOD's needs. This effort led to a tentative agreement in early 2013 on an NNSA program and budget that would be in line with the "3+2 Strategy," and DOD agreed to contribute additional funding to execute the program in FY14. In total, DOD has agreed to transfers of nearly \$12 billion over multiple years in budget authority to DOE.

During this period, a series of NNSA budget shortfalls were reported. These resulted most significantly from significant cost growth in the DOE programs. Other contributing factors included reductions in the overall NNSA budget—due to Continuing Resolutions, congressional marks, the Budget Control Act, and the effects of sequestration.

DOD has been frustrated by these continuing shortfalls, delays in agreed-upon programs, and requests for additional funding. DOD officials also have been frustrated by the limited budget and cost information provided by DOE/NNSA, and they have pressed for information on budgeting and program management processes in order to track the execution of the transferred funds. A satisfactory degree of visibility has not been achieved. Although these transfers were included in the President's Budget, visibility of the funds was lost during the Congressional appropriations process. It appears the net effect of the *transfer* is that DOE budgets have increased by less than the amount by which DOD budgets have decreased.

The cycle of DOD-NNSA engagement continues through the Nuclear Weapons Council, with additional attempts to reach convergence on realistic program and infrastructure plans that can guide NNSA budgets. There remain significant procedural issues that will need to be resolved to repair this relationship. Considerable work remains to be done: the Nuclear Weapons Council has a central role to play in creating an executable plan for the future stockpile agreed on by the two departments. This responsibility will require an orderly process for the Nuclear Weapons Council's working groups to serve its principals and greater transparency between the two departments.

C. Unnecessarily Complex Processes for Interagency Work

Beyond DOD, the enterprise has many other customers from across the government, such as the Intelligence Community, Department of State, and the Department of Homeland Security, who make use of the organic science and technology (S&T) capabilities of the NNSA's national security laboratories. The customer provides the funds needed to accomplish a mutually agreed program of work on an agreed schedule. This program has been called Work for Others (WFO) and is transitioning to a new name, Interagency Work (IW). The growth in IW demonstrates that the three NNSA laboratories have transitioned from strictly nuclear weapons labs to nuclear national security labs, as reflected in the *Strategic Posture Commission Report*.

While the descriptions of Interagency Work convey the impression that this work is done on the margin, or is an ancillary duty for operational sites, this work in fact has become essential

to the enduring science and technology base that supports the weapons program. Conversely, this important work would not be possible without the long-standing and substantial investments of the nuclear weapons program. As the three lab directors argued in their April 2012 letter on governance issues, the IW is “an essential element” in sustaining the nuclear weapons mission because it helps attract high-quality personnel, keeps them scientifically sharp, and helps provide stability for the enterprise.³⁶ The IW efforts have yielded breakthrough developments in combatting improvised explosive devices, weapons of mass destruction (WMD) detection technologies, and advanced conventional munitions. IW has also served to nurture and hone capabilities synergistic to the weapons program in areas such as weapons design, materials science and radiation hardening technologies to enhance survivability. These contributions to national security technology are also important for hiring and developing needed talent.

In the main, these other customers are pleased with the quality of science and engineering, and the final product, they receive from the enterprise. The 2010 establishment of the Mission Executive Council (MEC), via four-party Governance Charter by the Secretaries of Energy, Defense, Homeland Security, and the Director of National Intelligence, is intended to facilitate interagency collaboration on long-term planning and investment in the enterprise’s skillsets. The MEC provides a forum for coordinating shared, long-term planning for the critical, and often unique, capabilities resident in the DOE National Laboratories (not just NNSA laboratories) that are of cross-cutting strategic national security interest. The MEC, however, has not yet fulfilled its promise to (1) identify unique capabilities at the laboratories that are at risk as a result of reduced support to the weapons programs, and (2) formulate a multi-agency strategic plan to sustain those capabilities so that they are available when DOD and other agencies need them in advancing the nation’s security.

Given the overall success of the interagency projects, the panel did not focus deeply on the enterprise’s relationships with its interagency customers. Nevertheless, experts identified several issues for the panel’s consideration. One is the tactical approach taken by many customers: much of this work for external sponsors is accomplished using annual task orders with no long-term commitment. There is also a range of areas where working relationships could be simplified and improved:

- Interagency tasks are typically quite small and each laboratory manages hundreds of such tasks. (For example, LLNL reported it manages about 800 interagency tasks, many providing a few tens of thousands of dollars in support.)

³⁶ Albright, McMillen, and Hommert, “The Model for the National Nuclear Security Administration and its Laboratories: Recommendations for Moving Forward,” p. 1.

- Approval processes are needlessly cumbersome. Tasks are reviewed and approved individually. Even small, routine contracts require multiple levels of approval and can take weeks.
- Delays are not uncommon in the movement of funds from sponsors to the labs. In some cases, technical efforts may be put on hold pending arrival of funds.
- Year-to-year uncertainty in funding makes it difficult to forecast demand and manage professional staffs.
- Recapitalization of scientific and other physical capital is not addressed. While external funding covers the overhead costs immediately associated with the work being accomplished, it does not cover the cost of refurbishing and replacing the unique lab capital equipment and facilities used in some tasks.

Some customers have found ways to resolve some of these challenges by employing interagency agreements with DOE/NNSA in which the external funding organization makes a standing commitment to funding support at a specified level of effort.³⁷ While necessarily subject to the availability of annual appropriations, this eliminates most of the uncertainty, enabling the nuclear weapon labs to better align and manage professional staffs and plan and conduct technical work. Capital investments to develop needed capabilities for interagency customers are a more difficult challenge, but they too have been overcome in limited cases. NNSA has had to approach this challenge on a facility-by-facility basis.

³⁷ Homeland Security Act of 2002, Sec. 309, authorizes DHS use of DOE national laboratories and sites via joint sponsorship, direct contract, or "work for others." Labs and sites perform such work on an equal basis to other missions at the laboratory and not just on a noninterference basis. DHS does not pay costs of DOE or its contractors in excess of the amount that the DOE pays. DHS' position is that it strongly prefers using authorities given it in law to allow it to work across the DOE complex in response to proposals.

6. Conclusion

This interim report summarizes the panel's observations on the governance of the nuclear security enterprise. The panel is continuing to clarify and document the issues identified here. Recommendations to address the problems are being developed. The panel's interim findings indicate that fundamental reform will be required to reshape an enterprise that is capable of meeting all of the nation's needs. The changes will be difficult regardless of where the enterprise is located within the government, since the fundamental problems are cultural more than organizational. Organizational change, while not unimportant, is only a small portion of the changes that must be made. The panel believes lasting improvements are possible, but they will demand strong and sustained leadership and proactive support from Congress, the White House, and engaged Departmental Secretaries.

Appendix A. Sources

Table A.1. Testimony to the Panel and Fact-Finding Interviews

Current Members of the Enterprise and Government Officials	Name	Organization
	Atkins-Duffin, Cindy	Office of Science and Technology Policy, Nuclear Matters
	Barton, Matthew	DHS, Domestic Nuclear Detection Office
	Beausoleil, Geoffrey	Sandia
	Benedict, Terry	US Navy, Strategic Systems Program (SSP)
	Cook, Donald	NNSA
	Creedon, Madelyn	OSD Policy (Global Strategic Affairs)
	Dearolph, Douglas	Savannah River
	Elliott, Michael	The Joint Staff
	Epstein, Jon	SASC Staff
	Erhart, Steven	Pantex and Y-12
	Gentile, Chris	Kansas City Plant
	Harencak, Garrett	US Air Force, Strategic Deterrence & Nuclear Integration
	Held, Bruce	DOE, NNSA
	Holecek, Mark	Kansas City Plant
	Hommert, Paul	Sandia
	Juzaitis, Ray	Nevada Nuclear Security Site

Current Members of the Enterprise and Government Officials	Name	Organization
	Kendall, Frank	OSD, Acquisition, Technology and Logistics
	Khol, Curt	OSD CAPE
	Knapp, Bret	Lawrence Livermore
	Kusnezov, Dimitri	DOE
	Lawrence, Steven	Nevada Nuclear Security Site
	Lebak, Kimberly	Lawrence Livermore
	Limage, Simon	DOS, Bureau of International Security & Nonproliferation
	McMillan, Charles	Los Alamos
	Moniz, Ernest	Secretary of Energy
	Moody, III David	Savannah River
	Morrison, Timothy	HASC Staff
	Poneman, Daniel	DOE
	Reis, Vic	DOE
	Soofer, Robert	SASC Staff
	Spencer, Chuck	Y-12
	Tomero, Leonor	HASC Staff
	Trautman, Steve	Naval Reactors
	Walter, Drew	HASC Staff
	White, William	Los Alamos
	Winokur, Peter	DNFSB
	Woolery, John	Pantex

Current Members of the Enterprise and Government Officials	Name	Organization
Former Members of the Enterprise and Former Government Officials	Name	Organization
	Beckner, Evert	DOE
	Brooks, Linton	NNSA
	Browne, John	Laboratories
	D'Agostino, Thomas	NNSA
	Davis, Jay	DOD
	Deutch, John	DOD
	Guidice, Steve	NNSA
	Harvey, John	DOD-NNSA
	Hunter, Thomas	Laboratories
	John, Mim	Laboratories
	Kuckuck, Robert	DOE
	Lehman, Ronald	DOD-NNSA
	Miller, George	Laboratories
	Miller, Neile	NNSA
	Nanos, George	Laboratories
	Ostendorff, William	NNSA
	Przybylek, Charles	DOE
	Robinson, Paul	Laboratories
	Selden, Robert	DOD-NNSA

Current Members of the Enterprise and Government Officials		
	Name	Organization
	Smolen, Robert	DOD-NNSA, NSC staff
	Tegnelia, James	DOD
	Younger, Steven	Laboratories
Other Subject Matter Experts		
	Name	Organization
	Baker, Michael	British Defense Staff
	Chiles, Hank	Lead, Previous NSE studies
	Foster, John	Lead, Previous NSE studies
	Howanitz, John	Bechtel
	Johnson, Ray	Lockheed Martin
	Mackinder, Andy	British Defense Staff
	Madsen, Michael	Honeywell
	Mara, Glenn	University of California
	Overskei, David	Lead, Previous NSE studies
	Patel, C. Kumar	National Academy of Science
	Pinfield, Lynsey	British Defense Staff
	Schwitters, Roy	JASON
	Shank, Charles	National Academy of Science
	Taylor, Paul	British Defense Staff
	Welch, Larry	Lead, Previous NSE studies

Table A.2. Fact-Finding Interviews

Organization	Department/Section
AFL-CIO	
Civil nuclear power industry	Various (on non-attribution basis)
Congress	
Members:	Congressman James Cooper
	Congressman Michael Rogers
	Senator Jefferson Sessions
	Congressman Adam Smith
	Senator Mark Udall
Committees:	Appropriations
	Energy and Commerce
	Energy and Natural Resources
	Energy and Water subcommittee
	Oversight and Investigations
	Strategic Forces subcommittee
Defense Nuclear Facilities Safety Board (DNFSB)	
Department of Defense	Joint Chiefs of Staff
	OSD, Acquisition, Technology and Logistics
	OSD, Cost Assessment and Program Evaluation
	OSD, Global Strategic Affairs
	OSD, Nuclear, Chemical and Biological Defense Programs
	OSD, Nuclear Matters
	OSD, Policy
Department of Energy	Chief Financial Office

Organization	Department/Section
	Environmental Management
	Health, Safety and Security
	Human Capital
	IG
	International Affairs
	International Nuclear Energy Policy
	Health, Safety, and Security
	Human Capital
	Nuclear Energy
	Office of Management
	Office of Science
	S&T Advisor
Department of Homeland Security	Domestic Nuclear Detection Office
	Office of National Laboratories
	Science & Technology
Department of Health and Human Services	Centers for Disease Control and Prevention
Department of Justice/Federal Bureau of Investigation	Weapons of Mass Destruction Directorate
Department of State	Arms Control and International Security
	Arms Control, Verification and Compliance
Federal Aviation Administration	Air Traffic Organization
National Aeronautics and Space Administration (NASA)	
Navy	Naval Reactors (NR)

Organization	Department/Section
	Strategic Systems Programs (SSP)
NNSA – headquarters	Office of the Administrator
	NA-00
	NA-10
	NA-20
	NA-40
	NA-80
	NA-APM
NNSA – Field (Sites and Field offices)	Kansas City
	Lawrence Livermore
	Los Alamos
	Nevada National Security Site
	Oakridge Y-12
	Pantex
	Sandia
	Savannah River
Nuclear Regulatory Commission	
Office of the Director of National Intelligence	National Counterproliferation Center
Office of Management and Budget (OMB)	
Occupational Safety and Health Administration (OSHA)	
Office of Science and Technology Policy	

Appendix B Acronyms

AFL-CIO	American Federation of Labor and Congress of Industrial Organizations
CAPE	Cost Assessment and Program Evaluation
CMRR	Chemistry and Metallurgy Research Replacement
DHS	Department of Homeland Security
DNFSB	Defense Nuclear Facilities Safety Board
DOD	Department of Defense
DOE	Department of Energy
DP	Defense Programs
ES&H	Environment, Safety, and Health
FBI	Federal Bureau of Investigation
FFRDC	Federally Funded Research and Development Center
FY	Fiscal Year
HASC	House Armed Services Committee
HSS	Health, Safety and Security (DOE)
ICBM	Intercontinental Ballistic Missile
IDA	Institute for Defense Analyses
ISO	International Organization for Standardization
LANL	Los Alamos National Laboratory
LEP	Life Extension Program
LLC	Limited Liability Company
LLNL	Lawrence Livermore National Laboratory
LRSO	Long-Range Standoff
M&O	Management and Operating
MEC	Mission Executive Council

MOA	Memorandum of Agreement
NA-APM	NNSA - Acquisition & Project Management
NA-00	NNSA - Infrastructure & Operations
NA-10	NNSA - Defense Programs
NA-20	NNSA - Defense Nuclear Nonproliferation
NA-40	NNSA - Emergency Operations
NA-80	NNSA - Counterterrorism and Counterproliferation
NASA	National Aeronautics and Space Administration
NNSA	National Nuclear Security Administration
NNSS	Nevada National Security Site
NR	Naval Reactor
OMB	Office of Management and Budget
OSD	Office of the Secretary of Defense
OSHA	Occupational Safety and Health Administration
PF-4	Plutonium Facility at Technical Area 55 (TA-55), LANL
PIDAS	Perimeter Intrusion Detection and Assessment System
R2A2	Roles, Responsibilities, Authorities, and Accountabilities
S&T	Science and Technology
SASC	Senate Armed Services Committee
SLBM	Submarine-Launched Ballistic Missile
SNL	Sandia National Laboratories
SSP	Strategic Systems Programs, U.S. Navy
START	Strategic Arms Reduction Treaty
UPF	Uranium Processing Facility
WFO	Work For Others
Y-12	Y-12 National Security Complex, Oak Ridge, Tennessee

FRED UPTON, MICHIGAN
CHAIRMAN

FRANK PALLONE, JR., NEW JERSEY
RANKING MEMBER

ONE HUNDRED FOURTEENTH CONGRESS
Congress of the United States
House of Representatives
COMMITTEE ON ENERGY AND COMMERCE
2125 RAYBURN HOUSE OFFICE BUILDING
WASHINGTON, DC 20515-6115
Majority (201) 225-2927
Minority (201) 225-3541

March 23, 2016

The Honorable Norman R. Augustine
Retired Chairman and CEO
Lockheed Martin Corporation
6801 Rockledge Drive
Bethesda, MD 20817

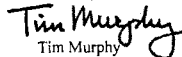
Dear Mr. Augustine:

Thank you for appearing before the Subcommittee on Oversight and Investigations on Wednesday, February 24, 2016, to testify at the hearing entitled "DOE for the 21st Century: Science, Environment, and National Security Missions."

Pursuant to the Rules of the Committee on Energy and Commerce, the hearing record remains open for ten business days to permit Members to submit additional questions for the record, which are attached. The format of your responses to these questions should be as follows: (1) the name of the Member whose question you are addressing, (2) the complete text of the question you are addressing in bold, and (3) your answer to that question in plain text.

To facilitate the printing of the hearing record, please respond to these questions with a transmittal letter by the close of business on Friday, April 6, 2016. Your responses should be mailed to Greg Watson, Legislative Clerk, Committee on Energy and Commerce, 2125 Rayburn House Office Building, Washington, DC 20515 and e-mailed in Word format to Greg.Watson@mail.house.gov.

Thank you again for your time and effort preparing and delivering testimony before the Subcommittee.

Sincerely,

Tim Murphy
Chairman
Subcommittee on Oversight and Investigations

cc: Diana DeGette, Ranking Member, Subcommittee on Oversight and Investigations

Attachment

FRED UPTON, MICHIGAN
CHAIRMAN

FRANK PALLONE, JR., NEW JERSEY
RANKING MEMBER

ONE HUNDRED FOURTEENTH CONGRESS
Congress of the United States
House of Representatives
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2125 RAYBURN HOUSE OFFICE BUILDING
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Minority (2021) 225-3641

March 23, 2016

Admiral Richard W. Mies
CEO
The Mies Group, Ltd.
10505 Beaver Pond Court
Fairfax Station, VA 22039

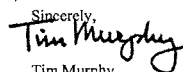
Dear Admiral Mies:

Thank you for appearing before the Subcommittee on Oversight and Investigations on Wednesday, February 24, 2016, to testify at the hearing entitled "DOE for the 21st Century: Science, Environment, and National Security Missions."

Pursuant to the Rules of the Committee on Energy and Commerce, the hearing record remains open for ten business days to permit Members to submit additional questions for the record, which are attached. The format of your responses to these questions should be as follows: (1) the name of the Member whose question you are addressing, (2) the complete text of the question you are addressing in bold, and (3) your answer to that question in plain text.

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Thank you again for your time and effort preparing and delivering testimony before the Subcommittee.

Sincerely,


Tim Murphy
Chairman
Subcommittee on Oversight and Investigations

cc: Diana DeGette, Ranking Member, Subcommittee on Oversight and Investigations

Attachment

New Foundations for the Nuclear Security Enterprise
Mr. Norman R. Augustine and Admiral Richard W. Mies (U.S. Navy, ret.)

Answers to Questions for the Record
Testimony of February 24, 2016,
Hearing on “DOE for the 21st Century: Science, Environment and National Security Missions”
Before the Subcommittee on Oversight and Investigations of the Committee on Energy and
Commerce, U.S. House of Representatives

QUESTIONS FROM THE HONORABLE TIM MURPHY, [PENNSYLVANIA–R]

Question 1: Your *New Foundation for the Nuclear Enterprise* report¹ recommends amending the relevant statutes to clarify that the Secretary [of Energy] “owns” the nuclear enterprise missions. One essential provision of DOE [Department of Energy] Organization Act² maintains that the Administrator of the NNSA [National Nuclear Security Administration] is subject to the Secretary’s “authority, direction, and control.”

Q1a. Would you please explain how your recommendations will enhance the Secretary’s “authority, direction and control” over the person (whether the Administrator or a newly created Director of Nuclear Security (DNS)) responsible for executing the nuclear security missions for the Department of Energy?

Taken in combination, the panel’s recommendations would enhance the Secretary’s authority, direction, and control in three important ways: [1] by solidifying the Secretary’s ownership of the NSE mission; [2] by creating a new Director of the Office of Nuclear Security reporting directly to the Secretary with clear roles and responsibilities for executing the NSE mission; and [3] by creating the conditions for appointing experienced technical leaders and managers.

Recommendation: Solidifying the Secretary’s Ownership of the Mission

The panel found that the U.S. nuclear security enterprise has suffered as an “orphan mission” since the end of the Cold War—a problem regarding the entire nuclear enterprise. In our deliberations, it became very clear that one major factor contributing to this situation is that a separately organized NNSA had the effect of isolating the nuclear enterprise from the needed Cabinet Secretary leadership.

The panel also observed that the separately organized provisions of the National Nuclear Security Administration (NNSA) Act³ create a divided HQ staff since the Act prohibits functional staffs from serving both DOE HQ and NNSA. It is difficult to see the benefits of such an approach. NNSA comprises about 40 percent of DOE’s budget, and the total DOE’s nuclear-related programs, including cleanup and civilian

¹ Congressional Advisory Panel on the Governance of the Nuclear Security Enterprise (Augustine-Mies panel), *A New Foundation for the Nuclear Security Enterprise* (November 2014).

² Relevant statutes include 42 U.S. Code Chapter 84—Department of Energy and 50 U.S. Code Section Chapter 41—National Nuclear Security Administration.

³ 50 U.S. Code Section 2400—National Nuclear Security Administration.

energy programs, represent more than 60 percent of the DOE annual budget.⁴ One has to ask, “What CEO of a successful company would permit one of its largest, most demanding and unforgiving missions to be quarantined from the headquarters staff? Or to use an operational metaphor: How could the commander of a ship at sea fulfill his or her duties if 40% of the crew were “separately organized?” That would be both inefficient and risky. Therefore, it is with the “separately organized” structure of the Department. It creates a split in the perspectives and perceived responsibilities of the HQ staffs, which creates unnecessary duplication, friction, stasis, and risk.

The panel’s recommendation is to create the conditions for the Secretary (and the rest of DOE) to fully embrace the nuclear security mission, and then to create a healthy operating culture within this structure. One essential step toward overcoming the current situation and restoring the proper focus is to place the enterprise under the leadership of a knowledgeable and engaged Cabinet Secretary. There are critical roles to be played by a Cabinet-level official in solidifying partnerships across Cabinet Departments (especially Defense, Intelligence, and State), and in representing the enterprise within the White House as well as on Capitol Hill.

The panel therefore recommended that Congress amend the DOE and NNSA enabling legislation to “place the responsibility and accountability for the nuclear security mission squarely on the shoulders of a qualified Secretary.”⁵ Under the proposed management model, the Secretary will be seen—both within DOE and externally—as the nation’s top official responsible for the nuclear security enterprise. The panel recommended several accompanying steps that would signify and reinforce this view of the Secretary’s ownership of the nuclear security enterprise. These include confirmation hearings and annual reporting responsibilities for the Secretary, as well as joint DOE-DOD [Department of Defense] planning activities that underscore the Secretary’s ownership.

The panel’s recommendations specified specific roles and responsibilities to be assigned to the Secretary. These are provided in the table below.

Proposed Roles and Authorities of the Secretary of Energy

- The Secretary is assigned full ownership of and accountability for the nuclear security missions
- The Secretary sets Departmental policy and priorities for executing nuclear security missions, conveys full authority to the Director for executing the missions, and ensures Departmental mission-support staffs serve the missions effectively
- The Secretary’s nuclear security roles and needed background are emphasized by requiring confirmation hearings with both the Senate Energy and Natural Resources Committee and Senate Armed Services Committee
- Annual mission reviews with Presidential staff and oversight committees of Congress emphasize the Secretary’s accountability

The importance of the enterprise and its missions is to be signified by renaming the Department the Department of Energy and Nuclear Security

Source: New Foundations, 29.

⁴ In Fiscal Year 2016, the budgets of NNSA (\$12.9 billion), Nuclear Energy (\$999 million), and Environmental Management (\$6.1 billion) total \$19.99 billion of DOE’s total budget of \$32.5 billion (61.5%), where NNSA is 39.6% of the entire DOE budget.

⁵ *New Foundations*, 26.

Assigning mission execution responsibility and authority to a Director, Office of Nuclear Security, reporting directly to the Secretary

While it is necessary that the Secretary own the NSE mission, execution responsibilities should be assigned to a strong enterprise Director with unquestioned authority to execute nuclear enterprise missions consistent with the Secretary's policy direction. This would be accomplished by revising the National Nuclear Security Administration (NNSA) Act to fully integrate the NNSA in DOE under the Secretary's leadership. Central to this reform is to make clear that the Director of the Office of Nuclear Security works directly for, and reports directly to, the Secretary. And—as discussed later—because the Secretary owns the mission, his or her entire staff must pivot to support it. The roles of the Director are spelled out in the accompanying table.

Proposed Roles and Authorities of the Director, Office of Nuclear Security (ONS)

- The Director has full authority to execute the nuclear security missions under the policy established by the Secretary, and therefore must possess strong technical management capabilities
- For leadership and continuity, the Director's position is an Executive Schedule II with a tenure of at least six years (subject to Presidential review); the Director shall be assigned the rank of Deputy Secretary or Under Secretary of DOE&NS [Department of Energy and Nuclear Security]
- The Director is provided direct access to the President on issues critical to ONS's missions, such as nuclear stockpile safety, security, and reliability; non-proliferation
- The Director is provided direct access to the Secretary on all ONS matters; the Director advises the Secretary on all Departmental policies as they affect the nuclear security missions and recommends responses to findings and recommendations of advisory/oversight groups
- The Director is assigned risk acceptance responsibility and authority on ONS matters, taking full responsibility and accountability for executing the Secretary's policies for nuclear security missions
 - Mission-support staffs advise the Director on risk-acceptance decisions
 - Any disagreements between line managers and mission-support staffs are quickly raised through an appeals process to the Director for adjudication and decision (and in rare cases, where resolution is not reached, to the Secretary)
- The Director has full authority to shape and manage the ONS technical staff; existing political appointments beneath the Director are converted to Director-appointed Senior Executive Service or Excepted Service positions
- To eliminate redundancies, ONS receives mission support from Department headquarters staff functions; the Director provides input on performance evaluations for mission-support staff personnel

Source: *New Foundations*, 29.

In addition to our structural recommendations, the panel identified a number of management best practices based on high-performing benchmarked organizations. Prominent among these are the issues addressed above: a capable, empowered leadership with well-defined roles and responsibilities. But there are several other important conditions, including the following:

- (1) clear plans with careful analysis of the resources needed to execute those plans,
- (2) a clear line-management structure down through the operational activities,
- (3) strong program managers focused on mission deliverables,
- (4) effective communications,
- (5) effective incentives, and
- (6) clear accountability.

The panel's recommendations would establish proven practices addressing each of these conditions. Aggressive implementation would significantly improve operations in the near term, thus addressing well-known morale issues and, in time, reshaping the management culture.⁶

In sum, a simpler, clearer operational structure reporting to the Secretary would significantly enhance the Secretary's authority and control of the nuclear security mission. An effective structure could reduce the time and energy required to make the organization work effectively and thus would free time and energy to produce national security capabilities that address the nation's substantive challenges.

Creating the conditions for appointing outstanding technical leaders and managers

Finally, the panel has made it clear that the national security enterprise requires capable technical leaders and managers with sufficient authority and tenures to forge a highly reliable operating culture. A Secretary with proven technology leadership skills is in the best possible position to "own" the NSE mission. Moreover, when one considers the NSE in the context of the entirety of DOE's S&T (science and technology) missions—comprising DOE's 17 National Laboratories—it is clear the Secretary has a vital national role in ensuring the health of U.S. science and engineering capabilities.

Last year's CRENEL report provides a view of the capability of the DOE laboratory enterprise to contribute to a broad range of national needs, including security, science, energy supply and demand, and economic technology competitiveness.⁷ The DOE laboratories are national assets operating at the forefront of global science and engineering capabilities across a wide range of disciplines:

- high performance computing
- nuclear deterrence
- nuclear non-proliferation, counterproliferation
- sustainable energy
- energy efficiency
- genomics
- advanced manufacturing

The DOE laboratories are built from an accumulated federal investment over many decades. Today, the combined annual funding for the labs is \$11.7 billion from DOE and a total of \$14.3 billion when work funded by other agencies is included.⁸ By this dollar measure, the DOE laboratory system is about four times the size of the Defense Advanced Research Projects Agency, two times the size of the National Science Foundation (NSF), three-fourths the size of the National Aeronautics Space Administration (NASA), and one-half the size of the National Institutes of Health (NIH). In short, the DOE labs are prominent assets among the nation's federal S&T institutions.

Viewed from this perspective, DOE is a vital S&T and national security resource that has far greater and more important operational roles than has been acknowledged over the history of the Department. The panel believes the Department's top leadership team—especially, but not exclusively, the Secretary of Energy—should be selected and judged in view of its ability (1) to provide state-of-the-art applied science

⁶ A compelling critique of the workplace environment and morale, and the implications for DOE missions, can be found in the National Research Council report, *Managing for High Quality of Science and Engineering at the NNSA National Security Laboratories* (Washington, DC: National Academies Press, 2012).

⁷ Commission to Review the Effectiveness of the National Energy Laboratories [CRENEL], *Securing America's Future: Realizing the Potential of the Department of Energy's National Laboratories*, 2 vols. (October 2105).

⁸ Cited in the CRENEL Report, vol. 2:3, table 1.

and (2) to produce fundamental capabilities essential to national security. Structured appropriately, the job of the Secretary of Energy provides a unique opportunity to contribute to scientific advancement and national well-being.

The tenure of Energy Secretary Ernest Moniz demonstrates that a Secretary, who is highly qualified and experienced and possesses the necessary credibility and intellectual stature, can establish leadership across the Department. He harnessed the capabilities of DOE's laboratories to play a substantive role in the technical negotiations with Iran on the nuclear armaments agreement. DOE's technical contributions must continue as treaty compliance is monitored. Similarly, capable Under Secretaries and Assistant Secretaries have moved programs in valuable directions. For example, strong technical leadership enabled DOE to conceive, establish, and execute the Stockpile Stewardship Program.⁹

The panel believes a radically new mindset is needed in conceiving the role of the Secretary. To be sure, the Secretary has a wide range of important political and policy responsibilities, however much of the task is truly not a Washington political position: it is more akin to the technical leadership positions in NASA, NIH, or NSF. Fundamentally, the stewardship of the laboratory system, including the national security enterprise, comprises critical responsibilities that must be given close attention and provided effective leadership.

Selecting proven leaders for the Department, combined with the simplification of the management structure will set the DOE on the needed path toward the creation of a healthy operating culture. These steps are the essential first steps.

Q1b. A complaint has been that NNSA's statutory semi-autonomy has impeded communications across DOE components. Explain how your proposed structure would enable fuller communication.

The panel's recommendations would simplify and improve communications through three important steps.

Recommendation: Define the communication channel up and down the chain of command

First, the clear assignment of mission ownership to the Secretary and mission execution to the Director of ONS defines the backbone of the HQ communications and decision-making framework. The Secretary and the Director of ONS would be responsible to create mechanisms that would integrate needed management information. This should simplify reporting demands, allow for the integration of needed management information, and more closely linked reporting requirements to management responsibilities.

This step addresses one source of confusion seen by the panel regarding the operational chain of command and reporting relationships. DOE has been plagued by the existence of parallel communication channels within individual functional communities without a clear delineation of authority and accountability. Because of the blurring of authority, the enterprise lacks a clear definition of who needs what information and who gives direction and provides effective mechanisms for establishing an integrated view across functional communities.

⁹ An example of effective technical leadership is posed in the article by Victor H. Reis, Robert J. Hanrahan, and W. Kirk Levedahl, "The Big Science of Stockpile Stewardship," *Physics Today* 69(8) (2016), 46, <http://dx.doi.org/10.1063/PT.3.3268>.

Recommendation: Eliminate the HQ divide that impairs communication within functional communities

Second, the panel's recommendations would remove the "headquarters divide"—the separation of NNSA HQ functional communities from their counterparts in DOE headquarters. The ambiguities and overlaps in roles and responsibilities under the "separately organized" structure have created disincentives for individuals to share information across this divide because each HQ staff is, in effect, in competition with the other HQ staff for control.

The panel's structural recommendations for removing the headquarters divide include the consolidation of HQ mission-support staffs. These staffs would form professional pools of expertise available to each of the major operational components of the Department. The panel envisions a matrix-support arrangement in which functional experts would belong to a professional functional community but would be assigned to support the operating components. For example, legal experts, accounting experts, or public affairs experts would be managed through their functional community but they would be assigned to support the operating components, under the direction and review of the operational component head. (This resembles the supported-supporting command relationship routinely employed in the military and industry.)

Recommendation: Create a clear channel of communication and direction between the Director of ONS and field-operating contractors

Third, the panel noted that, at the field-operating level, free-flowing information between the operating activities and headquarters is an essential attribute of highly reliable organizations. A number of recommendations touch on the character and content of such communication. The actions include improved mission planning, improved infrastructure planning, and improved program planning. (For these plans to have meaning and to improve management, they must be based on realistic costing and program planning; hence the panel has also emphasized the need for an effective, independent costing activity.)

The integration of operational communications (and direction) is addressed by establishing a simple, clear operating structure. The panel's recommendation is as follows.

The Director should establish a simple, clear line-management operating structure that both synchronizes activities across programs, mission-support functions, and operating sites and provides leadership focus for key programs.

The key synchronizing functions that had been performed by the Albuquerque Operations Office are needed today. An effective mechanism would solidify the decision authority of the Director and coordinate the efforts of all the key officials accountable for executing the program. The participants include the Director, Deputy Directors, program managers, the management and operations contractor leadership, and field office managers.

An effective mechanism will permit the participants to share information regularly across sites, programs, and functions. It will provide a clearinghouse for raising issues in the execution of programs and for considering strategies for resolving them. Over time, the discipline of exercising leadership and management roles through this mechanism will reinforce the needed management culture by improving communications, understanding, and working relationships.

In summary, the panel's recommendations would consolidate and clarify channels of communication in all three of these important dimensions: communication up and down the chain of command;

communication within functional communities across the current HQ divide; and the integration of field-level communication between the Director of ONS and site operators.

Question 2. Under the NNSA Act, the limitation on the Secretary's delegation authority effectively prohibits the exercise of authority, direction, or control by non-NNSA DOE personnel.

Q2a. Would you explain whether or not you agree the statutory limitations on the Secretary's delegation authority impedes or potentially impedes the Secretary's ability to ensure sound and effective management?

The Secretary's ability to delegate authority to HQ staffs is an area where the panel found inconsistencies in the statutes. "Separately organized" is variously defined, implying different relative roles for DOE HQ staff and NNSA staff in 42 U.S.C. Chapter 84 versus 50 U.S.C. Chapter 41. Footnote 29 of the panel's report records the following:

DOE and NNSA define and govern their relationship based on legislation that does not unequivocally assign policy and risk acceptance authority. Section 7144 of 42 U.S.C. Chapter 84 reads, "The Secretary shall be responsible for establishing policy for the National Nuclear Security Administration" and "The Secretary may direct officials of the Department...to review the programs and activities of the Administration and to make recommendations to the Secretary regarding administration of those programs and activities, including consistency with other similar programs and activities of the Department." Section 7144(a) further states that, "The Secretary shall be responsible for developing and promulgating the security, counterintelligence, and intelligence policies of the Department."

These statutes conflict with § 2402(b) of 50 U.S.C. Chapter 41, which declares, "The Administrator has authority over, and is responsible for, all programs and activities of the Administration...including...(2) Policy development and guidance...(6) Safeguards and Security...(9) Environment, safety, and health operations" and § 2402(d), which states "the Administrator can establish NNSA-specific policies unless disapproved by the Secretary."¹⁰

As a practical matter, NNSA operates under authorities and mechanisms that create unnecessary ambiguity and friction. The panel found that the NNSA Act, as implemented, made organizational changes designed to insulate NNSA from DOE headquarters (1) without specifying the Secretary's roles, (2) without stipulating the relationships between NNSA and DOE headquarters staffs, and (3) without requiring actions to shift the Department's culture toward a focus on mission performance. NNSA was not provided the line-management authority necessary to "own" mission execution, including the integration of safety, security, and environmental concerns into the decision-making for executing NNSA's missions. Neither was an effective policy implementation framework established. Many of the details of these structural flaws are provided in Chapter 2 of the panel's *New Foundations* report.

During the time the panel conducted its review, it observed the same problems with ambiguity and friction within the HQ staffs as was observed in an earlier GAO [U.S. Government Accountability Office] report:

¹⁰ *New Foundations*, 22, fn 29.

...NNSA and DOE have not fully agreed on how NNSA should function within the department as a separately organized agency. This lack of agreement has resulted in organizational conflicts that have inhibited effective operations.¹¹

Each community believes it is doing what is directed by the statutes; and each is correct—given its interpretation of the law. But lacking an effective management framework—including the lack of an especially clear delineation of value-added roles and responsibilities—the inevitable result is duplication, friction, stasis, and risk.

Q2.b. To the extent you believe this is an impediment or potential impediment, please explain how your recommendations address this or otherwise enhance the Secretary's ability to ensure sound and effective management of the Department.

The fundamental solution is to create a healthy operating culture in DOE. First and foremost, this requires establishing the Secretary's mission ownership and the Director's responsibility and authority for executing the mission under the Secretary's direction. Having done this, the need remains to create a simple, clear management structure. The panel's recommendations to remove the HQ staff divide would remove the existing legislative ambiguities in authorities and responsibilities described above. In doing so, the resulting framework would make clear that the Under Secretary heading the Office of Nuclear Security owns the responsibility for executing the NSE mission. Two specific recommendations from the panel's report are central to this:

- (1) First, the Secretary should establish a matrix management structure that
 - aligns and codifies roles, responsibilities, authority, and accountability
 - specifies the Director's leadership authority over line-management and mission-support ("functional") staffs assigned to ONS [and]
 - eliminates overlapping headquarters staffs¹²

An essential step in establishing the needed matrix management structure is the alignment and systematic documentation of roles, responsibilities, authority, and accountability. Individuals at all levels should understand their roles and their contributions to mission execution. This should be done in a manual available to everyone working within the nuclear security enterprise.

- (2) Second, the Secretary should stipulate that the Director, ONS, shall receive support from the Department's mission-support staffs in order to eliminate redundancies, reduce costs, and leverage best practices. To make this approach work effectively, the Secretary must establish suitable management structures and processes to ensure that the Director can interact with and draw upon the skills and expertise across line-management staffs and these DOE&NS mission-support elements.

An effective personnel management system is essential. The Director should have input on performance evaluations for those mission-support staff personnel assigned to assist ONS. The Director further should have the authority to approve or dismiss assigned individuals. In addition, those DOE&NS functional staff directors responsible for the functional communities

¹¹ U.S. GAO, *National Nuclear Security Administration: Additional Actions Needed to Improve Management of the Nation's Nuclear Programs* (Washington, DC: U.S. GAO, January 2007).

¹² *New Foundations*, 32.

who provide matrix support to ONS must be accountable to the Secretary to ensure their organizations' responsibilities are executed in support of nuclear security missions.

While mission-support staffs serve primarily to support and advise line managers, there must be a mechanism that allows functional experts to question and appeal the decisions of the line managers. Such a mechanism needs to elevate issues quickly to the appropriate authorities for resolution, as described in Action Item 4.1 [of the panel report].

The Secretary should designate those senior headquarters positions that have line-management decision authorities and those that are responsible for mission-support functions.

To codify the resulting management system, the Department will need to create a manual that clearly defines and codifies roles and responsibilities, including authority, direction, and control.

Question 3. Under the current set-up, NNSA has its own mission support offices, which your report indicates contribute to duplicative DOE mission support and separate lines of direct accountability and reporting either to the Secretary or to the Administrator. Would you explain specifically what is necessary to reform the mission support functions of the Department to ensure more effective and efficient support of the Secretary's legal, security, management, and oversight responsibilities?

As explained previously under Question 2.b, the Secretary should eliminate the HQ divide by consolidating functional staffs. For example, DOE should have a single General Counsel. Legal experts working throughout DOE would be hired and managed by the General Counsel. Lawyers supporting the ONS would be selected by the Director of ONS, assigned for duty by the General Counsel with the approval of the Director of ONS, and performance evaluations would be provided by the Director to the General Counsel. (The other DOE component organizations would have similar processes for selecting and rating legal staff assigned to assist their component.) Under this system, each of the Department's functional communities builds and manages a common core of professional capability. The advantages of such a management structure is that it fosters communication within the community, creates greater flexibility for career development and management, and makes the most cost-effective use of available talent.

There are a number of alternative ways for structuring this arrangement. The ideal solution likely will vary across functional communities. Limited by its scope, the panel did not undertake the detailed analysis necessary to propose arrangements for specific operating elements.

FRED UPTON, MICHIGAN
CHAIRMAN

FRANK PALLONE, JR., NEW JERSEY
RANKING MEMBER

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March 23, 2016

Dr. Jared L. Cohon
President Emeritus
Carnegie Mellon University
107B Porter Hall
5000 Forbes Avenue
Pittsburgh, PA 15213

Dear Dr. Cohon:

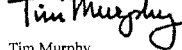
Thank you for appearing before the Subcommittee on Oversight and Investigations on Wednesday, February 24, 2016, to testify at the hearing entitled "DOE for the 21st Century: Science, Environment, and National Security Missions."

Pursuant to the Rules of the Committee on Energy and Commerce, the hearing record remains open for ten business days to permit Members to submit additional questions for the record, which are attached. The format of your responses to these questions should be as follows: (1) the name of the Member whose question you are addressing, (2) the complete text of the question you are addressing in bold, and (3) your answer to that question in plain text.

To facilitate the printing of the hearing record, please respond to these questions with a transmittal letter by the close of business on Friday, April 6, 2016. Your responses should be mailed to Greg Watson, Legislative Clerk, Committee on Energy and Commerce, 2125 Rayburn House Office Building, Washington, DC 20515 and e-mailed in Word format to Greg.Watson@mail.house.gov.

Thank you again for your time and effort preparing and delivering testimony before the Subcommittee.

Sincerely,



Tim Murphy
Chairman
Subcommittee on Oversight and Investigations

cc: Diana DeGette, Ranking Member, Subcommittee on Oversight and Investigations

Attachment

FRED UPTON, MICHIGAN
CHAIRMAN

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March 23, 2016

The Honorable TJ Glauthier
President
TJG Energy Associates, LLC
1001 Ocean Boulevard
Moss Beach, CA 94038

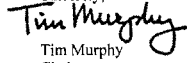
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Sincerely,

Tim Murphy
Chairman
Subcommittee on Oversight and Investigations

cc: Diana DeGette, Ranking Member, Subcommittee on Oversight and Investigations

Attachment

The Honorable Tim Murphy**1. Your report recommends abandoning incentive award fees for M&O contracts in favor of a fixed fee.****a. What prompted this recommendation?**

The Commission found that contracting organizations may be motivated to run laboratories out of a sense of service to the Nation, for reputational enhancement, for access to quality technical staff, and/or for other reasons, but management fee is not, and should not be, the primary motivation. Incentive fees may be appropriate for some types of production operations, but are not the best mechanism for research organizations. Fees must be adequate to cover unallowable costs, such as gaps in salary, community and educational contributions, employee scholarships, and potential risks, but they do not need to be as high as some of the recent NNSA laboratory contracts.¹

The Commission also noted that approximately six years ago, NASA changed its contract for the Jet Propulsion Laboratory (JPL), also an FFRDC, from an incentive fee to a fixed fee. JPL personnel have found the change to be positive in that it has decreased bureaucracy associated with the annual fee awarding process. The primary incentive for the laboratory to perform well is that it will receive more research funding from NASA; the punishment is that it will receive less.

b. What are the advantages of a fixed fee versus an incentive fee?

The Commissioners find that a high fee perpetuates the stereotype that laboratory managers and M&O contractors are focused only on profit and are merely "contractors" rather than partners. In addition, the process to evaluate performance and award fee has led to box checking and transactional compliance for the laboratories. Both of these have contributed to a breakdown in trust between some of the laboratories and DOE. The Commission agrees with the Augustine/Mies panel finding that the relationship between the NNSA laboratories and the government has been eroded by a fee structure and contract approach that invites detailed, tactical, and transactional oversight rather than a strategic, performance-based management approach.²

¹ In FY 2014 the average available award fee as a percentage of the laboratory budget from DOE was 1.76%. While Sandia's (1.56%) was lower than the average, both Lawrence Livermore's (3.83%) and Los Alamos' (3.17%) were higher. This translated to an available award fee of \$28.1M for Sandia, \$45.9M for Lawrence Livermore, and \$63.4M for Los Alamos.

² See Congressional Advisory Panel on the Governance of the Nuclear Security Enterprise (Augustine/Mies panel), *A New Foundation for the Nuclear Security Enterprise*, 12–14.

c. What is your reaction to the Department's response to this recommendation?

As noted, the Commission recommended that DOE abandon incentive award fees in the M&O contracts of the National Laboratories in favor of a fixed fee set at competitive rates with risk and necessary investment in mind. We are encouraged by the Department's recent step in this direction as outlined in the Draft Request for Proposal (RFP) for Sandia National Laboratories' M&O Contract Competition. The Draft RFP delineates three categories of work: (1) management and operation of the laboratory, for which the contractor will receive cost-plus-fixed-fee and award fee; (2) strategic partnership projects (formerly known as work for others), for which the contractor will receive only cost-plus-fixed-fee; and (3) capital construction projects, the price and price structure of which will be agreed upon individually.³ This represents a significant step away from incentive fees and towards fixed fees and we are hopeful it will be extended to all laboratory contracts over time.

d. How can we measure meaningful progress by the Department in addressing this recommendation?

The most effective way to ensure meaningful progress is through the creation of an independent standing body as described in the final recommendation of our report. Such a standing body could track implementation of all the recommendations and actions in our report, and to report regularly to DOE, the laboratories, the Administration, and the Congress on progress, results, and needed corrective actions. The standing body could also assist congressional committees in developing a rational plan for future evaluations of the DOE laboratories.

2. Your report highlights opportunities for NNSA to leverage best practices from other DOE program offices – such as the Office of Science – to improve engagement between NNSA and their labs.

a. Why hasn't this occurred in the past?

We would like to note that NNSA has begun to leverage the best practices of other DOE program offices in certain areas. For example, according to the Department's response to the Commission report, "NNSA will execute plans to improve its governance and oversight of field operations at its laboratories, sites, and plants and clarifying roles and responsibilities. The new approach will clarify the oversight roles of headquarters and field office personnel, placing emphasis on new rigorous and dependable Contractor Assurance Systems (described below), and leveraging best practices from the Office of Science, including enhancing peer review and corporate parent involvement as appropriate for each site." (p.12) In

³ Draft Request for Proposal No. DE-SOL-0008470

addition, "NNSA and the applied energy offices will model their revised [laboratory planning] processes using core elements and attributes from the lab planning process used by the Office of Science." (p.16)

We are encouraged by these initial steps, but it remains to be seen whether a true partnership between the weapons laboratories and NNSA can be established.

b. How does the current organizational and statutory structure between NNSA and DOE affect this type of collaboration?

There is no question that DOE's ability to influence NNSA's treatment and relationship with its laboratories is hampered by NNSA's semi-autonomous state. In the past, NNSA leadership and staff have chosen to ignore the best practices of other program offices within DOE and do things their own way, sometimes to the detriment of the relationship with their laboratories. As we said, the jury is still out on whether the latest effort to normalize their practices will have a lasting impact.

